



## **An Independent Audit of Forest Management on the Spruce River Forest for the Period 2001 to 2006**



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## **1.0 EXECUTIVE SUMMARY**

BioForest Technologies Inc. carried out an independent audit of forest management on the Spruce River Forest (SRF) covering the period from April 1, 2001 to March 31, 2006. The SRF has been managed through this period under Sustainable Forest License (SFL) #542526 held by Abitibi Consolidated Company of Canada (Abitibi). The audit examined Abitibi's compliance with the terms and conditions of its SFL for the SRF and reviewed the Ontario Ministry of Natural Resources' (OMNR) performance in meeting its obligations on the SRF. The audit included an extensive review of the plans and records of forest management activities, along with field verification visits to areas where a variety of forest management activities occurred during the audit period. Public input was solicited through a public mailing, newspaper advertising, mail-in surveys, and public meetings.

This audit report identifies 11 recommendations and 8 suggestions aimed at improving the management and administration of the SRF. The main aspects requiring corrective action or improvement on Abitibi's part relate to improving conformance in residual stem retention on harvest sites with the guidance provided, improving security of loads on the Graham Road, and improving adherence to report submission timelines for annual reports and compliance reports.

The audit recommends the OMNR improve habitat suitability analysis for moose, and other species as appropriate, and collect complete information identifying cold water streams and trout habitat.

One overlapping licensee, with the approval of OMNR head office but with no prior notification to the SFL holder or the OMNR District office, has deferred payments to the silvicultural trust fund. The auditors recommend that OMNR inform the license holder prior to approving such changes and take responsibility for deferred charges, plus interest, after a six month period.

The audit confirms that this is a well-managed forest. Technical aspects of forest management are completed in a highly satisfactory manner. Communication between the various stakeholders on the forest is excellent and relations are professional, positive and progressive. The SFL holder is satisfactorily meeting all of the terms and conditions of the SFL. OMNR is also meeting its overall responsibilities associated with its role in managing this forest. The audit team confirms that, based on the evidence reviewed, management of the Forest was in compliance with the legislation, policy, and regulations that were in effect during 2001-2006 audit term. The SRF is being managed sustainably. The audit team has recommended that the term of Sustainable Forest License #542526 be extended for an additional five years.





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## 2.0 INTRODUCTION

An Independent Forest Audit (IFA) of the Spruce River Forest (SRF) was undertaken in the autumn of 2006, to ensure that forest management activities were carried out in accordance with the plans, guidelines, regulations and legislation in force during the five years from April 1, 2001 to March 31, 2006. This audit was conducted in compliance with the *Crown Forest Sustainability Act* (CFSA) (Statutes of Ontario 1994) and fulfills the requirements of the *MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario* (Ontario Ministry of Environment and Energy 2003). The audit assessed the effectiveness of forest management activities in achieving the management objectives for the SRF. Also examined was the compliance of Abitibi Consolidated Company of Canada (hereinafter referred to as "Abitibi," the "Company," or the "SFL holder"), with the terms and conditions of its Sustainable Forest License (SFL) #542526 for the SRF, approved on April 14, 1999, and most recently amended on March 1, 2006. Finally, the audit reviewed the Ontario Ministry of Natural Resources' (OMNR) performance in meeting its obligations on the SRF.

A team organized by BioForest Technologies Inc. conducted the audit. The audit team consisted of three Registered Professional Foresters, a biologist/ecologist, a socio-economist, and a secretariat. Each member of the team was assigned specific duties and responsibilities. A list of the audit team members and their qualifications is presented in Appendix B.

The audit was conducted under the guidance of the 2006 *Independent Forest Audit Process and Protocol* (IFAPP) (OMNR 2006). The IFAPP outlines eight principles upon which the audit is based; these are listed in Appendix C. The principles define the major features of forest management that were audited. Each principle is supported by a series of criteria. The IFAPP describes how each criterion should be audited and specifies the evidence that should be available for the auditors to use to assess compliance with the criteria.

To measure and assess auditee performance, the audit team considered all eight IFAPP principles collectively. In total, the protocol identifies 129 criteria that were applicable to this forest and assessed as part of the audit. The audit team analyzed the findings from the audit and, where appropriate, noted any failures, non-compliances, or exceptional practices related to individual principles or criteria. This report summarizes the findings and presents recommendations and suggestions. Recommendations are presented where, in the opinion of the audit team, the auditees have not met a performance requirement, or where an observation, or a collection of observations, has led the auditors to conclude that there is an issue of concern. Auditees are expected to design, document and implement specific remedies for the issues raised through recommendations. Suggestions have been made for situations where the audit team anticipates the auditees could elevate their forest management practices above the minimal standard.

## **2.1 Audit Process**

The auditors collected evidence through document review, interviews with staff and stakeholders, and physical inspection of field activities that occurred on the SRF between April 1, 2001 and March 31, 2006. The audit process began with an information meeting in Thunder Bay on March 21, 2006. The purpose of the meeting was for the lead auditor and the auditees (Abitibi and OMNR) to discuss audit logistics and for the lead auditor to collect background information and documents for the audit. Following the information meeting, an audit plan was written and distributed that outlined the audit schedule and identified the main contacts for the audit.

From July 15 - August 30, 2006, the audit team reviewed documents describing forest management activities on the SRF from 2001 to 2006. Interviews were held with a variety of interested parties. Company and OMNR personnel were interviewed throughout the audit. Most of these interviews took place in person, but contact between the audit team, auditees, and the public by phone and e-mail was common.

Using the mailing list that the OMNR maintains for the SRF, a survey was sent to 541 stakeholders on August 1, 2006. The survey was also posted on the BioForest web page. A public information booth was advertised in the Chronicle Journal in Thunder Bay on August 8, 2006, and hosted in the Intercity Shopping Centre in Thunder Bay on August 9 and 10, 2006. The purpose of the survey and the information booth was to provide members of the public with an opportunity to comment on the forest management that occurred on the SRF over the audit period. The audit team received 22 responses to the survey, a return rate of about 4 %. Twenty-two people visited the public information booth. Eight of the visitors discussed the SRF specifically, while the remaining visitors were interested in the audit process in general.

A pre-audit meeting was held in Thunder Bay on August 9, 2006, to discuss the audit schedule, auditee staff requirements, issues, contacts, and auditor assignments. Also on August 9, 2006, the lead auditor completed initial field site visits on the SRF and attended a Local Citizens' Committee (LCC) meeting. In addition to the meeting with the LCC, all LCC members were interviewed directly.

The lead auditor completed field site selections on August 9, 2006. The site visits were selected to evaluate harvest, renewal, tending/maintenance, free-to-grow (FTG) operations, areas of concern (AOCs), road construction and maintenance, site preparation, water crossings, wildlife management activities, and other areas of special interest. Sites that had multiple audit values (e.g., renewal and AOC) were preferentially selected. Site visits were selected to ensure that the audit team observed all geographic areas of the Forest during the field inspections. Samples were stratified to ensure that evaluations of winter and summer operations were representative of actual operations and included representative sites operated on by each of the overlapping licensees.

On-site and field audit activities occurred between September 11-15, 2006. The objective of the site visits was to evaluate forest operations that had been carried out between April

1, 2001 and March 31, 2006, assess compliance with plans and prescriptions, and assess the effectiveness of management activities.

The audit team verified records and information systems in the Abitibi and OMNR offices. The team split into two or three field crews, each of which was accompanied by Abitibi, OMNR, or overlapping license holder staff. A representative from the LCC accompanied one audit team through each field day. Sampling was completed through 13 person days of field inspections. One of these person days focused on lowland or inaccessible sites using a helicopter. Sampling continued until the auditors had viewed all of the selected sites and were satisfied that they had viewed enough sites to be confident in their assessment of field performance.

Field sampling was designed so that a minimum of 20% of the areas that had been harvested within the audit period was sampled. The auditors visited 68 sites, covering approximately 5,652 of the 26,296 ha planned for depletion during the audit period. In total, the audit team inspected 49 sites that had harvest activity, 39 sites that had renewal activity, 40 sites that had site preparation (mechanical or chemical), 26 sites that had been tended, and 15 sites that had been declared FTG. Over the course of the field audit, the auditors made formal observations on 80 AOCs. In total, the audit team visited sites representing approximately 22% of the areas that received operations through the audit period.

The audit protocol required sample testing be undertaken on the Forest Renewal Trust Fund accounts by visiting sites in the field for which reimbursements had been made for the 2004-2005 season. The *Specified Procedures Report* (KPMG 2006a and KPMG 2006b) was commissioned by OMNR during the audit term as a selected review of the reimbursements paid out to SFL companies under the terms of the Forest Renewal Trust Agreements. The auditors did not receive a draft of the report until the field audit had been completed, therefore no correlation between the *Specified Procedures Report* and field site selection was possible. A review of field sites visited during the audit confirmed that 18 sites with silvicultural treatments during the 2004-2005 season were visited during the field audit. This amounted to about 19% of the sites treated during that season. Silvicultural operations that had occurred on these sites were consistent with billing information provided in the draft report.

The field audit occurred during a drought. Fires were burning throughout the audit, which added an unusual suite of considerations when planning field activities (Figure 1).



**Figure 1. The smoke plume in the centre of this picture is an indication of the extreme fire conditions that existed during the field audit.**

## **2.2 Forest Management Context**

Located north of the City of Thunder Bay, the SRF extends eastward toward Dorion, north to the Obonga/Uneven Lake area, and northwest through Graham to Sowden Lake. High quality roads, including Highways 527 and 811 and the Graham Road, provide access to the SRF. The boundary of the SRF is shown with other significant reference features in Figure 2 of Section 2.2.1 of this report.

The majority of the SRF is in the Thunder Bay District of the Northwest Region of the OMNR, with a small portion being in the Dryden District. The planning and overall administration of the SRF is the responsibility of the OMNR and Abitibi. For the OMNR, the Thunder Bay District oversees the forest management planning and administrative matters associated with the SRF. The SFL for the SRF (SFL #542526) was approved on April 14, 1999, and most recently amended on March 1, 2006. The term of SFL #542526 is from April 1, 2003 to March 31, 2023.

Abitibi has woods and mill offices in Thunder Bay at the Fort William Division mill and at the woods garage facility at the intersection of Highway 11/17 and Highway 527. The SRF supplies wood to Abitibi's processing facilities in Thunder Bay, as well as to the following companies that have wood supply commitments outlined in SFL #542526: Northern Sawmills Inc. (Thunder Bay), Levesque Plywood Limited (Nipigon), Cascades Fine Papers Group Thunder Bay Inc. (Thunder Bay), and Buchanan Northern Hardwood Inc. (Thunder Bay). Other companies with mills and/or processing facilities that use



wood from the SRF are Bowater Inc. (Thunder Bay), Dorian Fibre-Tech Inc. (Thunder Bay), Great West Timber Ltd. (Thunder Bay), Kimberly-Clark Corporation (Terrace Bay), and Norampac (Red Rock).

Non-timber, commercial uses of the SRF include tourism, trapping, and mining. There are six tourist outfitter companies operating two non-remote lodges and 18 remote outpost camps in the SRF. The SRF has 29 traplines and 28 trap cabins. North America's only open pit producer of palladium is in the SRF.

Recreation is the main non-timber, non-commercial use of the SRF. The extensive road system through the SRF allows for access to activities such as camping, fishing, hunting, berry picking, and staying at cottages. The SRF has over 175 cottages.

In 1999, 44,519 ha of the SRF became protected area under Ontario's Living Legacy (OLL) Land Use Strategy. The areas designated as conservation reserves under OLL are Ottertooth, Dog River, Garden-Pakashkan, and Lake Nipigon. The provincial parks or provincial park additions created under OLL are Gull River Waterway Park, Kopka River Waterway Park (Addition), Obonga-Ottertooth Waterway Park, and Black Sturgeon River Waterway Park.

### **2.2.1 Map of Management Unit**

Figure 2 presents a map of the SRF and includes other geographic features, primary access routes, and the Fort William Mill.

### **2.2.2 Forest Description**

The Canadian Shield is divided into provinces. Two provinces, the Superior Province and the Southern Province, are represented in the SRF. The Superior Province is the oldest and largest province, with rocks that are more than 2.5 billion years old. Rocks in the Southern Province are 600 million to 2.5 billion years old. Sedimentary rock under the Wolf River area is about 1.55 billion years old. The current surface geology of the SRF is the result of bedrock being repeatedly modified by glaciations over the last two to three million years. The most recent glaciation, the Wisconsinan Glaciation, occurred approximately 9,000 years ago.

The topography of the SRF has a wavy appearance. For example, the Wolf River and Obonga Lake area has over 60 m of relief, while the Chief Bay area has less than 15 m of relief. Most of the SRF drains into Lake Superior. Significant geological features of the SRF include eskers and an interlobate moraine.



Figure 2. Map of the Spruce River Forest.

The SRF is located in the Boreal Forest Region and has five main soil groupings: organic, fine textured, coarse textured, shallow, and ground moraine. Organic soils, although limited in size, are found across the SRF and support black spruce, larch, and cedar. While fine textured soils are uncommon on the SRF, coarse textured soils are common and support jack pine, black spruce, and some hardwoods and shrubs. Shallow soils are found throughout the SRF, but they do not cover large areas. Ground moraine is the major soil type of the SRF and it supports all Boreal trees species.

Table 1 presents a summary of the managed Crown land on the SRF for 2001-2006. The total area shown in Table 1 does not include any parks or protected areas that fall within the management unit boundaries. Black spruce is the predominant tree species on the SRF. The other major tree species are jack pine, poplar, and balsam fir.



**Table 1. Landbase summary for Crown lands on the Spruce River Forest (2001-2006).**

Land class	Area (ha)	Percent total area	Percent production forest
Non-forested			
Other land	1,788	0.3%	
Forested			
Non-productive	53,761	8.3%	
Protection	9,282	1.4%	
Production forest			
B&S/NSR	21,621	3.3%	3.7%
Depleted	--	--	--
White pine	44	0.0%	0.0%
Red pine	--	--	--
Jack pine	144,627	22.2%	24.7%
Black spruce	231,923	35.6%	39.6%
Balsam fir	59,932	9.2%	10.2%
Cedar	4,529	0.7%	0.8%
Larch	437	0.1%	0.1%
Poplar	86,923	13.4%	14.8%
White birch	30,083	4.6%	5.1%
White spruce	5,968	0.9%	1.0%
Other conifer	185	0.0%	0.0%
Total production forest	586,272	90.0%	
Total forested land	649,315	99.7%	
Total area	651,103	100.0%	

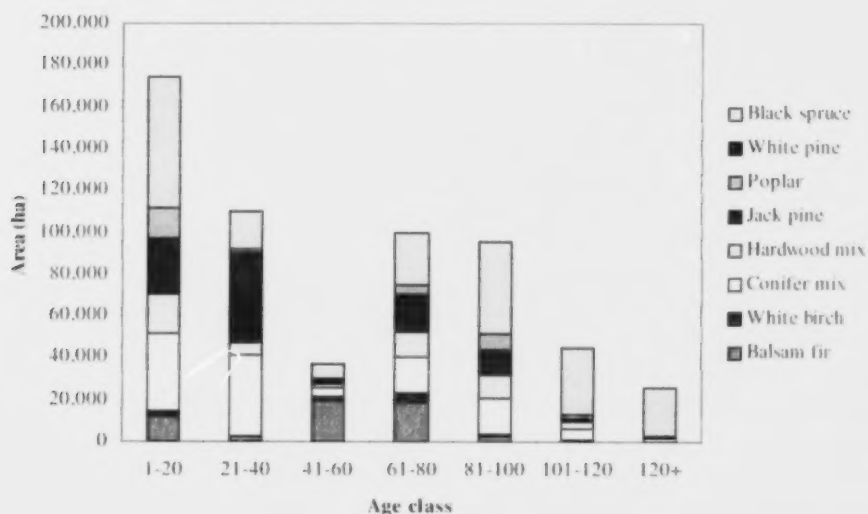
Source: Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report for the Spruce River Forest

Natural disturbances, including blowdown, fire, and spruce budworm infestations, have significantly influenced the development of the SRF into a predominantly coniferous forest. Since 1991, natural disturbances, particularly forest fires, have affected 9,000 ha of the SRF. Spruce budworm infestations have reduced the white spruce and balsam fir component of many stands in the Wolf River area of the SRF.

Figure 3 presents the age class structure of the SRF by major tree species. The black spruce working group is mainly mature or over-mature (81+ years) (46.9%), but 29.5% of the black spruce working group is in the 1-20 year age class. Due to massive fires on the SRF, 67% of the jack pine working group is less than 40 years old and only 14.3% is mature or over-mature. Thirty-one percent of the poplar working group is mature or over-mature and 48.2% of the poplar working group is in the 1-20 year age class. The majority

of the balsam fir working group is 41-80 years old, with 35.5% being in the 41-60 year age class and 33.5% being in the 61-80 year age class.

The age class on the SRF is not well balanced (Figure 3). The 1-20 year age class is represented by 29.7% of the productive forest and 28.3% of the productive forest is mature or over-mature (81+ years). However, only 6.4% of the productive forest is in the 41-60 year age class, probably due to a lack of large forest fires 40-60 years ago that could have significantly influenced the forest structure. Trees in the 41-60 year age class are mainly the result of harvesting activities in the Wolf River and Chief Bay areas. While the spruce and jack pine working groups account for 64.3% of the productive forest, only 9,193 ha of the two working groups are in the 41-60 year age class. The 21-40 year age class, which was significantly affected by a fire in 1980, is represented by 18.7% of the productive forest. Being a fire origin species, the jack pine working group represents 39% of the 21-40 year age class. The 1980 fire has created a situation where the 21-40 year age class is confined to one geographic location. The gap created by the under representation across the SRF of the 21-40 and the 41-60 year age classes will have significant impacts on the forest's ability to produce timber and provide wildlife habitat. This has been addressed in the management alternative selected for the 2006 forest management plan (FMP) and is further discussed in the management planning section of this report.



**Figure 3. Age class distribution of working groups on the Spruce River Forest, 2001-2006.**

### 2.2.3 Forest Management Issues

It is expected that the task of managing any public forest in Ontario is going to bring with it challenges and issues. The 2006 SRF FMP identified the following nine issues:

- 1) *Imbalance of age class structure:* The jack pine working group in the SRF is heavily weighted to the 21-40 year old age classes due to a massive fire in 1980. Only 6% of the productive landbase is in the 41-60 year old age class.
- 2) *Diversity of User Groups:* Conflicts have arisen between different groups who use the SRF. User groups such as anglers, berry pickers, canoeists, hunters, prospectors, and trappers want unlimited access to the Forest, while tourist outfitters want access to be restricted.
- 3) *Variety of wildlife habitat:* Developing management strategies that collectively meet the requirements of caribou, moose, and pine marten is a challenge on the SRF.
- 4) *Natural disturbance pattern emulation:* The landscape size limitations imposed by the *Forest Management Guide for Natural Disturbance Pattern Emulation* (NDPEG) (OMNR 2001a) are difficult to incorporate on the SRF because they conflict with the current direction of the Forest (i.e., Caribou Mosaic) and the moose guideline that resulted in the southern part of the forest being extensively fragmented.
- 5) *Poplar wood supply:* As noted in the 2001 FMP and the 2001 IFA report (Callaghan and Associates Inc. 2001), poplar wood supply commitments exceeded the sustainable wood supply. To address this issue, the OMNR Regional Director suggested that part of the poplar commitment be transferred to another SFL. Discussions are on-going.
- 6) *Forest health and sustainability:* Particular consideration is being given to maintaining the overall health and sustainability of the SRF so that future generations will be able to enjoy the benefits of the Forest.
- 7) *Employment opportunities:* To help expand the economic base of the region, it will be necessary to continue providing and increasing employment opportunities arising from the SRF. This should include opportunities for First Nation Peoples and other users.
- 8) *Public involvement:* Managing the SRF in a balanced and sustainable manner requires input from various user groups. Providing opportunities for user groups to participate is challenging but can be achieved through groups such as the LCC.
- 9) *Values collection:* Gathering wildlife information has to be timely to ensure that proper AOC planning can be completed for areas where operations are going to occur next to wildlife values.

### 3.0 SUMMARY OF AUDIT FINDINGS

#### 3.1 Commitment

Within the audit, commitment is assessed in terms of the existence of policy documents that provide a vision and mission to the forest management organization, while giving long-term guidance to the management of the organization. Commitment must also be evident in the day-to-day operations of the organization.

Abitibi has an Environmental and Sustainable Forest Management Policy that addresses its commitment to sustainable management and has communicated this policy to its employees and contractors. Their policy commits to: "...preventing pollution, continually improving our environmental performance, meeting or exceeding compliance with all applicable legislation and managing our forests in a sustainable manner..." These statements were visible on site during the audit, and were available to staff and the public on Abitibi's corporate web site (<http://www.abitibiconsolidated.com/>).

The Company's commitment is refined through third party verification to the International Organizations for Standardization (ISO) ISO 14001 and Canadian Standards Association (CSA) CSA Z809 Standard. It is not uncommon for Ontario forest companies to maintain an ISO 14001 certification, but Abitibi was the first Company to have its Crown forests certified to CSA standards in Ontario. Staff awareness of its environmental policies and certification standards is high.

Tangible evidence of Company commitment beyond the requirements of regulation was evident throughout the audit. Local Company and OMNR knowledge of the Forest was excellent, a key indicator that the forest estate was being managed on a continuous basis. Relationships with stakeholders were professional and positive.

OMNR has a number of initiatives that are directly related to forest management. These include: *MNR's Class Environmental Assessment Approved for Forest Management on Crown Lands in Ontario*, the *Old Growth Policy for Ontario's Crown Forests* (OMNR 2003), and the NDPEG; implementation of the *Forest Information Manual* (FIM) (OMNR 2001b); the ongoing creation, revision, and implementation of other resource management guidelines; and the regulation of protected areas through the OLL initiative. Ongoing implementation of these policies and guidelines is very important to maintaining the policy framework, and more importantly, to sustainable forest management. From the audit team's discussions with staff at all levels within the Thunder Bay District, it was apparent that staff are familiar with corporate policies and guidelines and are committed to carrying out OMNR's mandate.

The OMNR also has a host of "environmental policies" that guide their regulatory efforts. Discussion with staff at all levels confirmed that they are familiar with these policies and are committed to carrying out OMNR's mandate in this area.

## 3.2 Public Participation

### 3.2.1 Local Citizens' Committee

The Spruce River LCC has a diverse mix of individuals. The interests represented include: First Nations, mining, prospecting, angling and hunting, Metis, tourism, general public logging, overlapping licensees, cottaging, labour, trapping, environmental, business, etc. Many LCCs have a challenge getting Aboriginal representation, however, the Spruce River LCC has a First Nations representative from Lac Des Mille Lacs First Nation, a representative of the Metis Nation of Ontario, and a representative of a native logging company.

It was suggested in the 2001 IFA report that the composition of the LCC was largely older men. While the Committee was successful in recruiting two female members, both left the LCC during the audit period.

This is a very knowledgeable LCC with individual members who are very familiar with the SRF and forest management. A number of the members have committed a large amount of time to the LCC, whether through participation in the forest management planning process, the Committee's active role in cleaning up the forest ("The Clean Forest Environment Subcommittee"), or participation in Abitibi's CSA operations.

Interviews with 12 LCC members and a review of all minutes from 2001-2006 showed that the LCC operates in an open and inclusive manner reflective of its various interests. The Spruce River LCC largely operates via consensus, although votes are occasionally taken. The Terms of Reference for the LCC has been updated to reflect the 2004 Forest Management Planning Manual (FMPM) (OMNR 2004).

The LCC prepared a report on their participation in the 2006-2026 FMP and stated that: "The Local Citizens Committee for the Spruce River Forest is satisfied with the planning process and feels our advice has been properly considered. We are in general agreement with the final 2006-2026 Forest Management Plan for the Spruce River Forest." Among other tasks during the course of plan preparation, the LCC assisted in all of the following activities: planning team; writing objectives statements; public consultation sessions; values mapping; analysis (e.g., NDPEG); and the issue resolution process for Max Lake and Obonga Lake.

LCC members spoke highly of the support the Committee receives from both OMNR and Abitibi. LCC members spoke well of Abitibi's operations in the woods.

LCC members did flag some issues of concern. A number of LCC members are concerned with the overall economic health of the forest products industry amid the wide number of regional mill shutdowns and closures, and with questions of overall wood supply. Some members indicated that the provincial government is not doing much to help the economic sustainability of the industry or northern communities. LCC members

also expressed that access remains a challenge on the Forest, with many members of the public wanting to leave all access open. Lastly, the Committee has taken up the challenge of cleaning up the forest, a problem that has been exacerbated by the lack of government involvement in the management of waste in the forest estate.

### **3.2.2 FMP Standard Public Consultation Process**

The audit protocol has four criteria relating to the FMP public consultation process. The Company and OMNR met their obligations on all of them.

All five stages of the public consultation process were advertised in local newspapers (Thunder Bay Chronicle Journal, Ignace Driftwood, and Thunder Bay Source). An up-to-date mailing list was used to directly contact interested parties. The list included more than 570 individuals and institutions. The planning process met all requirements to consult with the public and ensure that interested members of the public had sufficient opportunity to observe and comment on both the 2001 and 2006 FMPs as they were being developed.

Members of the public made positive comments about the Second Information Centre. The event was noted as being well run, organized, and understandable. Members of the Planning Team and LCC present to talk to the public aided in the event. In the auditor's experience, such positive comment about open houses is unusual. No negative comments were received during the consultation process regarding problems with the clarity or understandability of information provided to the public, which is an even stronger tribute to the planning team's performance in reaching out to the public.

Opportunities for invoking the Issue Resolution and the Individual Environmental Assessment processes were properly communicated.

### **3.2.3 Native Peoples' Consultation**

The proximity of First Nations to the SRF has meant that it is of less interest to Aboriginal people than many other forests in the Province. Nevertheless, Aboriginal participation and interest in many aspects of forest management on the SRF has increased over the last five years.

The SRF Management Unit is intersected by three Treaty areas, namely the 1850 Robinson Superior Treaty, Treaty #3, and Treaty #9. No First Nation reserve is located within the Forest itself. Three First Nations were offered opportunities to choose the special Native Consultation Process: Lac Des Mille Lacs First Nation, Kiashke Zaaging Anishinaabek (KZA) (Gull Bay), and Fort William First Nation (FWFN). All three of these First Nations were also invited to participate on the planning team. FWFN declined the Native Consultation process and participation on the planning team. The Lac Des Mille Lacs First Nation did not request a special Native Consultation process, but did ask



to have representation on both the LCC and the Planning Team. Subsequently, representatives from Lac Des Mille Lacs participated on both. KZA (Gull Bay) initially expressed interest in hosting an Information Centre at Gull Bay, but the First Nation did not follow up with OMNR. KZA (Gull Bay) was involved primarily via participation from their consultant, the Aboriginal Strategy Group. All three First Nations have other forests that are in closer proximity and are of higher interest to their members.

A Draft Native Background Information Report was prepared for the SRF identifying the communities of interest to the Lac Des Mille Lacs First Nation and KZA (Gull Bay). The Native Background Information Report did not mention FWFN as a First Nation of interest, even though they were invited to the Native Consultation process. Even if FWFN did not ask for the Native Consultation process, they should be identified in the Native Background Information Report. This report was based on information submitted by Lac Des Mille Lacs First Nation and KZA (Gull Bay).

**Suggestion 1: In the Native Background Information Report, the Fort William First Nation should be identified as a First Nation of interest.**

The Lac Des Mille Lacs First Nation is currently working on a values map associated with the Dog River-Matawin Forest. This exercise might identify values in the western end of the SRF. OMNR and Abitibi should monitor their values process to ensure that the planned operations identified in the Annual Work Schedule (AWS) do not threaten any of those values.

**Suggestion 2: Abitibi and OMNR should track the progress of the Lac Des Mille Lacs First Nation values process to ensure that values are not threatened by operations in the current plan.**

Background and Final Reports on the Protection of Identified Native Values were prepared for KZA (Gull Bay) and Sand Point First Nation for the SRF by Aboriginal Strategy Group, although there was no indication given that Sand Point First Nation has an interest in the Forest. The work produced for KZA (Gull Bay) did result in the identification of a small number of values in the SRF. All of these values, except one, were in parks or conservation reserves and were, therefore, protected. One value resulted in the deferral of a harvest block. It should be noted that, with the exception of Lac Des Mille Lacs First Nation, the other four regional First Nations (KZA [Gull Bay], Whitesand, FWFN and Sand Point), do not appear to have concerns about unprotected values on the SRF landbase.

OMNR has conducted negotiations with local First Nations on economic opportunities. Two First Nations expressed disappointment at the lack of, or minimal nature of, opportunities. It should be noted that the First Nations with economic interests are not focused specifically on the SRF but, rather, are seeking economic opportunities across several management units.

The largest Aboriginal enterprise currently operating in the area is Niigaani Enterprises Inc., a native owned logging company based out of Gull Bay. Niigaani Enterprises Inc. did harvest on the SRF during the period of the audit, but has much larger operations on the Black Sturgeon Forest, which is in closer proximity to the Reserve. Niigaani Enterprises Inc. is also involved in tree planting and silvicultural work.

A member of KZA (Gull Bay) has silvicultural tending work with Abitibi. The Chief of KZA (Gull Bay) indicated that he is interested in seeing more opportunities with the forest sector over time and possibly through a regional economic development corporation, Chi-Neebah, that has been recently established by a number of local First Nations. The opportunities do not have to be in logging, but he would like to see more opportunities in mill-related projects, silviculture, and fire.

Tree planting jobs from the tree planting contractor were posted at Gull Bay and Fort William Reserves, but there was little to no response. Loki Reforestation is continuing with its First Nations Mentoring Program in association with the Lac Des Mille Lacs First Nation.

Lac Des Mille Lacs First Nation has formed the Upper Seine Forest Corporation, with the vision of creating long-term employment, wealth, and forestry stewardship on their traditional lands. While this interest seems to be focused in the Dog River-Matawin Forest, it is possible that this will extend into the SRF.

The only issue expressed to the audit team from FWFN is its interest in obtaining a birch allocation in the Thunder Bay and Nipigon Districts. FWFN's interest in the birch has been known to OMNR for approximately two years. FWFN's plans for a facility have evolved and the current concept is for a birch merchandising facility that delivers birch to other users and uses residual birch in some type of co-generation facility. FWFN expressed their dissatisfaction with the OMNR's failure to deliver tangible benefits to them through Condition #34 (formerly known as Term and Condition #77). The volumes desired for the facility are significant and well beyond the supply available in any one forest, although the SRF would likely be one source of the supply. As most of the birch volume in the Thunder Bay and Nipigon Districts was allocated to Buchanan Forest Products Ltd., OMNR has previously stated that they could not merely re-allocate that volume. Furthermore, the volume desired by FWFN was far more significant than the non-allocated birch in the Districts.

There are a number of challenges associated with Condition #34, not the least of which is that one of the few mechanisms OMNR has to create economic opportunities for First Nations is by granting non-assigned volume allocations to them. Unfortunately, since the implementation of Term and Condition #77, the vast majority of wood in the Province has already been allocated, resulting in only minor volumes of less desirable species being available for OMNR to give to First Nations. OMNR was therefore stuck between the legal supply commitments to forest products industries and the Condition of the Environmental Assessment Board that states that First Nations should be given more economic opportunities, which is what the First Nations want. The result of this



conundrum is that OMNR has rightly explained that they had a very limited number of tools to address the problem and First Nations have rightly complained that the few opportunities trickling to them were minor in nature. Neither party was wrong in their assertions.

Recently, events in northwestern Ontario have occurred that has resulted in Buchanan Forest Products Ltd. surrendering the majority of their birch allocation in the Thunder Bay and Nipigon Districts, potentially freeing up the birch for other users, including FWFN. While the OMNR believes it must go through a competitive tender process and cannot simply allocate the volume to FWFN, the evaluation scheme for the request-for-proposal process does recognize the importance of First Nations involvement/leadership. In essence, the OMNR is using one of the few tools at its disposal to potentially create an opportunity for First Nations. This does not guarantee an opportunity for FWFN, but it is in keeping with the spirit of the Condition.

At a time when the forest industry is undergoing a structural adjustment in the Province that is likely to result in changes to allocations, more opportunities for First Nations alone or in partnerships with industry could potentially occur. These opportunities could be realized if the OMNR is proactive in its future allocation deliberations. The current Condition #34 Guidelines should be updated to ensure that this opportunity is not lost. Many First Nations and Aboriginal peoples, including FWFN, are frustrated by what they see as a lack of results from Condition #34, so it is important to ensure all mechanisms are in place to realize these opportunities.

**Recommendation 1: Corporate OMNR shall revise Condition #34 Guidelines to ensure that all re-allocations of timber have regard for First Nations economic opportunities.**

Whitesand First Nation has indicated an interest in silvicultural opportunities between Armstrong and Thunder Bay, provided they are not competing with other First Nations contractors.

**Suggestion 3: OMNR and Abitibi should explore discussions with Whitesand First Nation regarding silvicultural opportunities on the Spruce River Forest.**

### **3.2.4 Annual Work Schedule Public Inspection**

An assessment of the various public notifications and direct mailings that are required prior to the implementation of annual operations revealed that all of the requirements are being fulfilled. Notification advertisements for the aerial spray programs are being placed in the local newspapers, as required. Abitibi and OMNR have been diligent in responding to the public's requests for further information.

### **3.3 Forest Management Planning**

Forest management planning is the foundation for the sustainable use of Ontario's forests. This audit reviewed both the 2001 and 2006 FMPs. The 2001 FMP was prepared in accordance with the 1996 FMPM (OMNR 1996). The audit team focused its field inspections on the implementation of this plan. The 2006 FMP was prepared in accordance with the 2004 FMPM. The auditors reviewed the planning team activities in creating the 2006 FMP.

#### **3.3.1 Planning Team Activities**

The 2001 and 2006 FMPs were produced by planning teams established two years prior to plan approval. The Terms of Reference were prepared and approved according to the requirements of the 1996 FMPM for the 2001 and 2006 FMPs.

The background information provided to the planning teams for both the 2001 and 2006 plans was adequate, although the values information provided by the OMNR should be improved, particularly with respect to the cultural heritage information. This action has been noted in Suggestion 2 in Section 3.2.3 of this report.

The planning teams for both the 2001 and 2006 FMPs were staffed with the appropriate professional and technical staff. The planning team chair in both instances was a professional forester as recognized by the Ontario Professional Foresters Association. The same individual served as plan author for both plans. The planning team was co-chaired by representatives from OMNR and the Company.

The auditors note that the planning team minutes were succinctly and consistently reported in a manner that was clear to outside observers. The minutes provided an excellent overview of the development of the plan, as confirmed in interviews. The planning team performed professionally throughout the process, even through contentious decisions regarding topics such as ungulate management, wood allocation, and the NDPEG.

Timelines were set appropriately in the Terms of Reference for both plans. Adherence to the established timelines was in general agreement with the Terms of Reference. Both plans were completed on time, which the audit team regards as the ultimate measure of the planning team's effort.

#### **3.3.2 Resource Stewardship Agreements**

The auditors reviewed the planning team minutes to evaluate the implementation of Resource Stewardship Agreements (RSAs). The Company met the intent of the Tourism and Forest Industry Memorandum of Understanding (RSA Working Group 2000), in creating a framework for negotiation with identified tourist operators on the SRF.

The effort appears to have been productive. All parties commented on the merit of business-to-business agreements for addressing potential problems. There were three RSAs signed. The standard AOC prescriptions included in the RSAs were regarded as acceptable by all parties.

There were no OMNR objections to provisions in the RSAs and no major changes were required. The RSAs did influence several AOC prescriptions (e.g., one skyline reserve), but no roads were altered and no new values were identified.

### **3.3.3 Source of Direction**

Plan preparation must be done in the context of many higher-level land use and policy documents. The auditors reviewed both the 2001 and 2006 plans and the AWSs from 2001-2006, to ensure that proper consideration had been given to the overriding guides. Overall, direction is appropriate, although there are some individual comments made in this report to address small inconsistencies.

A review of the planning team minutes confirmed the guides and policies that were used as sources of direction for the production of the 2001 and 2006 FMPs. FMP text indicates that Provincial guidelines and the Crown Land Use Policy Atlas were used.

The auditors' review of the AWSs confirmed that guide requirements, AOC prescriptions, and stand level requirements are being properly documented and carried forward from the FMP. Field observations confirmed that performance was within normal operating standards and met the requirements of the directly relevant guidance documents.

Complete information relating to the identification of forest values is identified on the SRF values map in Supplementary Documentation Part "D" of the 2006 FMP. Table FMP-7 contains land use information from the Crown Land Use Atlas, which has replaced all district land use guidelines and incorporates all OLL areas that have been regulated.

### **3.3.4 Introduction**

Introductory sections of the 2001 and 2006 FMPs contain the mandatory Statement of Environmental Values (SEV) briefing note, which is prepared by OMNR, and the index to the environmental components of the plan. Both of these documents met the respective FMP requirements.

### 3.3.5 Management Unit Description

The forest description in the 2001 FMP contains all the required parameters. Plan text clearly and succinctly describes and explains these parameters. The forest description for the 2006 plan includes all the required elements and provides the reader an excellent introduction to the forest. Photographs have been included in the forest description, which adds to the quality of the document.

The Forest Resource Inventory (FRI) is based on 1997 aerial photography that was photo-interpreted and digitized. The FRI includes photo-interpreted ecosite information for each forest stand.

The FRI data for the 2006 plan has been updated to April 1, 2006, for the preparation of the 2006 FMP. The update included changes due to harvest and natural depletions and additions of FTG areas brought back into the managed Crown forest landbase prior to April 1, 2003. FMP Tables 1 and 2 for both plans were prepared and accurately reflect the status of the forest at the time of plan preparation.

Review of the values information confirms that values identified by the public have been addressed in the plan. The IFAPP requires that the audit team confirm that public values, local featured species, and rare species are properly recorded and described in the plan. The FMP document describes the key species challenges accurately, focusing on caribou, marten, and moose. The plan provides a detailed and accurate picture of all of the species at risk on the forest. The importance of values collection was described in the plan as follows: "Timely collection of wildlife information is required to ensure that where operations are to occur adjacent to such values adequate Area of Concern Planning can be completed ..."

Caribou is the highest profile species on the unit, and the local biologists have made exceptional efforts to characterize the habitat. Radio collaring of caribou is technically and physically challenging, and a small program has been established locally. This has contributed to a better understanding of caribou use of the forest, but more can be done. This is further discussed in Section 3.3.7 of this report, *Operational Planning*. Regular surveys are flown for caribou in an attempt to establish their distribution.

Moose habitat requires considerable modification of harvest operations and timing, so accurate information is important. Regular five-year surveys of moose aquatic feeding areas and winter concentration areas are performed and the information is available for planning.

Habitat for furbearers, such as martens and wolverines, is not assessed directly. While martens are more common, wolverines are incidental in the northern and remote part of the unit. The forest inventory is used to assess availability of suitable habitat.

White-tailed deer have obtained a higher profile in the District due to a series of mild winters. However, there are no management objectives or strategies tailored specifically

to deer, as the Forest is considered to be more suitable for moose and caribou. Deer pose a potential threat to the other ungulates, as they carry a parasite that is lethal to moose and caribou.

The 2001 plan contained a target within the wildlife objective to provide a comprehensive Habitat Suitability Analysis (HSA) for moose. This was not completed during 2001 plan, possibly due to the need for technical support. Since then, as noted in the 2006 plan, ungulate dynamics has become more challenging. The risk to the moose and caribou from brain worm supports a closer look at ungulate habitat supply.

**Recommendation 2: OMNR shall ensure that a Habitat Suitability Analysis for moose, and other species as they deem appropriate, is completed to ensure forest management plan objectives are reached.**

Anecdotal and informal information about the thermal regime of streams and lakes on the SRF is quite good on the forest, but it is not captured on maps, and specifically not captured by Natural Resources Values Information System (NRVIS). Our review of the fisheries and wetlands map (numbered 4.1b) shows a number of lakes, including large ones, with undefined thermal regime. There is some concern that cool water systems may in fact be cold water systems, and this should be verified.

In addition, the inventory of trout bearing streams (rather than a water temperature assessment) could be improved, as this is a high profile recreation value. The audit team also observed three AOC reserves that did not contain defined channels (i.e., an apparent streambed). Given that this was a dry year, these observations may be erroneous. We have not recommended further action, although it raises some concern that there are reserves being designated that may not be required.

The opportunity to increase harvest area by partial harvest of some shoreline areas is dependent on knowledge of the fish species or, at least, the thermal regime. The Company did not pursue this type of harvest during the last plan, and has quite a limited amount scheduled in the new plan. They did not indicate the need to access this wood. Regardless, District staff should work to formalize in NRVIS the good basic thermal regime information that is in place, and improve the fish habitat information, in keeping with future resource management needs. This should be done before operations are scheduled.

**Recommendation 3: OMNR shall update the Natural Resources Values Information System (NRVIS) to confirm the status and location of cold water lakes and streams and potential trout habitat prior to the start of scheduled operations.**

The economic profile included a description of the industrial and non-industrial users of the Forest. The summary of the various mills that receive wood from the Forest was comprehensive and insightful, particularly the information provided on investment intention and spending. The non-industrial description of the forest was also good. In



particular, there was some detailed quantitative information on tourism that is not often found in plans.

The Ontario Federation of Anglers and Hunters (OFAH) provided supplementary information to OMNR on the economic impact of Crown land hunting, specifically moose, deer and bear hunting. While the effort by the OFAH was commendable, there appear to be some flaws in the information. The term "wealth created" is used as some sort of proxy to total economic impact, although it is not explained in the results and not properly referenced. Information was taken from work in the French Severn Forest, but there is no indication whether this involved primary research. There have been other economic studies on large game hunting done that are likely more valid for a benefits transfer exercise. Lastly, the study equates the total number of tag applications in the unit to the estimated number of hunters. The actual number of hunters may not be directly related to the number of applications. Nevertheless, the additional information added to the understanding of the local forest economy.

Section 2.3.4.4 of the FMP summarizes the Socio-Economic Impact Model (SEIM) analysis of the plan and states that: "The idea behind the socio-economic analysis is to account for as many forest users as possible." This is not really an accurate statement in this section of the FMP, as the model output does not identify the benefits or impacts of other economic users of the forest such as remote tourism, Crown land recreation, mining, etc. It would be more accurate to state that the results from the model are useful in identifying sectors in the local, regional and provincial economies that benefit from the selected management alternative with respect to the forest products industry. The statement, as it currently reads in the plan, misleads the reader as to the scope of the socio-economic analysis.

### **3.3.6 Objectives and Strategies/Management Alternatives**

The objectives for the 2001 FMP were prepared in accordance with the requirements of the 1996 FMPM and address the four broad categories as required by the CFSA, namely, forest diversity, social and economic matters, provision for forest cover, and silviculture.

One of the key exercises in preparing an FMP is using analytical tools to determine the expected future forest condition and estimating the implications of applying each particular management alternative relative to the desired outcomes or benefits over time. The provincially supported forest modeling software used in Ontario is known as the Strategic Forest Management Model (SFMM). The model requires hundreds of input records and constraints, ranging from operability limits and natural succession rates to post-harvest renewal rates and expected future yields. The auditors' examination of the SFMM inputs used in the FMPs revealed that the inputs used were reasonable.

Five management alternatives were presented in the 2001 plan and analysed by the planning team. These alternatives covered a reasonable set of objectives and strategies. The three mandatory alternatives were modelled and analysed as required by the 1996

FMPM. The 2006 FMP presents four management alternatives along with objectives and strategies.

Each management alternative was analyzed to identify the expected future forest condition that would result from its implementation, the implications of the management alternative in terms of its ability to ensure forest sustainability, and its ability to produce the desired benefits or outcomes over time. The analysis included an initial test of sustainability for each management alternative through the use of the non-spatial indicators of forest sustainability criteria (i.e., forest diversity indicators, managed Crown forest available for timber production, available harvest area and percentage actually utilized, and, finally, habitat for selected wildlife species). Those management alternatives that passed the initial test of forest sustainability were then assessed for their ability to achieve desired management objective targets over time. All management alternatives were shown to the public during two Information Centres and public review periods. The management alternatives were also presented to the LCC for review, comment and, finally, endorsement. All management alternatives were considered to be acceptable to the public.

Model inputs and assumptions for the 2001 plan were appropriately developed and documented using the best available information. Long-term sustainability of forest conditions and wildlife habitat was achieved in the selected management alternative. Timber supply sustainability was not achieved, as the aspen volume commitments were beyond what the Forest could provide.

The methodology and assumptions used in the 2006 management plan were very similar to those presented in the 2001 plan. A more detailed analysis was presented in Appendix 4 of the 2006 FMP, which covers a broader range of socio-economic topics. The analysis package presented in the new plan was consistent with direction provided in the 2004 FMPM.

The planning team for the 2001 plan analyzed SEIM results. The selected management alternative had the weakest economic impact of the alternatives considered, as tradeoffs were made between wildlife habitat and timber production. The 2006 plan undertook the required socio-economic assessment and documented it with the analysis package. The rationale for the selected management alternatives in the 2001 and 2006 plans was clear and logical. Both plans identified the ranking of each alternative in relation to each objective. The plans discuss the tradeoffs between the various alternatives.

In both plans, the analysis of management alternatives confirms a sustainable future for the Forest, if the current course is maintained. In the 2001 and 2006 plans, the available harvest area from Table FMP-18 corresponds with the results generated by SFMM for the selected management alternative.

Roads planning was well done and fully rationalized. Primary roads were planned according to the requirements, with alternative road corridors being considered.

Eligibility criteria that were consistent with the objectives and strategies were identified in the plan.

### **3.3.7 Operational Planning**

Operational planning includes the allocation of areas for operations, the layout of harvest areas, the planning of forest access, and the development of AOC prescriptions. AOC is the technical planning term for a forest value that has had a detailed prescription developed to protect it from potential adverse impacts of forest management operations. Normally, an AOC is protected through a prescription outlined in specific management guidelines appropriate to the value.

Operational planning for the protection of values occupies a considerable amount of time during planning. The AOC planning and documentation met all the requirements of the planning manuals for both plans. The detailed documentation includes the consideration of alternatives where appropriate.

In the 2006 plan, the NDPEG islands and peninsulas were allocated appropriately. In the 2001 plan, the AOC prescriptions followed the guides, or were modified in favour of the values concerned. One example concerns moose travel corridors, which have been done exceptionally well on the SRF. Stand maps confirm an intent to connect wide gaps between forest cover.

The 2001 plan implemented exceptions monitoring for osprey, and several locations were examined in the field during the audit. An error, in the form of an incorrect nest location, was noted in one of these exceptions. This was a unique finding, and therefore no corrective action is suggested.

A small amount of rutting (i.e., site damage caused by machinery operating on soft ground conditions) was observed within a cultural heritage AOC. The site disturbance restriction for sites identified as having high cultural heritage potential has an allowance for site disturbance of up to 5% of the site as stated in appendix 20 of the 2001 FMP. Other AOC prescriptions followed the current guides and were appropriately assigned.

Silvicultural ground rules (SGRs) were developed in the 2001 and 2006 plans. Table FMP-10 was completed appropriately, with prescriptions being in line with the appropriate guides. One exception prescription was written for the 2001 FMP for harvesting on shallow soils using full tree harvest systems. A regional monitoring system, discussed further in Section 3.6.2 of this report, was in place for these activities. The Company is monitoring one site, which was visited during the audit, to support this effort.

Selection criteria for operating areas were consistent with the eligibility criteria for the selected management alternatives. Separate criteria were developed for harvest, renewal, and tending activities. Clear rationale was provided in all cases.



Selected harvest areas were consistent with the areas generated in the selected management alternative. Overall, there was a -0.5% difference between the actual allocations and those generated by the models. Planned harvest areas differed from the available areas on an age class basis for each forest unit and differences were due to constraints placed on the Forest by the application of various wildlife habitat guidelines (e.g., caribou and moose), the mill requirements for specific timber quality (e.g., near-veneer aspen), and the allocation of uncut areas approved in the previous plan. The quantity of substitution does not impair forest sustainability.

Harvest depletions were accurately forecast and planned for in the 2001 plan. Tables were adequately and accurately produced. Depletions were similarly produced for the 2006 plan.

Wood supply commitments and directives in the 2001 and 2006 plans were documented and addressed. For the 2001 FMP, aspen commitments exceeded the volume available for harvest. With a new inventory for the 2006 FMP, aspen wood supply commitments could be met.

Forecasts for renewal, tending and support were prepared according to the requirements of the planning manual. The levels of activity were consistent with those needed to achieve objectives and ensure continued forest sustainability. Renewal support for planned activities was adequate. The Company has an abundance of local and/or improved seed available for its renewal activities.

Access planning was fully and professionally developed and presented in the plans. Access planning on the Forest is consistent with short- and long-term objectives for the Forest. Documentation in the FMPs met the requirements of the planning manuals.

The plans contained revenues and expenditure forecasts in Table FMP-27. All rates were clearly explained and any assumptions were discussed. The levels presented in the plans were consistent with the models and forecasts in the plan.

Both FMPs identify that a variety of monitoring will be carried out on operations, AOCs, and pests and other natural depletions.

Both the 2001 and 2006 plans contain summaries of the results of audits. The 2006 plan has incorporated most of the changes requested in the 2001 IFA report. Audit action plans and status reports have been prepared, though progress toward achieving some recommendations has not been satisfactory. For example, maintenance on the Graham road remains an issue of concern and is the subject of a recommendation in this report.

### **3.3.8 Plan Review and Approval**

The 2006 plan was submitted for review on time. The OMNR review was completed effectively. A preliminary list of alterations was submitted by OMNR to the Company.

After review and discussion, a final list was prepared by the OMNR and presented to the Company. The review and discussion was clearly useful in confirming the merit of each of the requirements. The Company identified how each alteration was addressed. This process was well done.

Both plans were appropriately sealed, certified and approved. A list of exceptions was presented in both the 2001 and 2006 FMPs. The lists were consistent with the plans themselves and were all rationalized. The FMP contributor pages listed planning team members, plan advisors and LCC members, as required.

### **3.3.9 Plan Amendments**

There were 14 plan amendments during the audit period. Eleven of these were administrative in nature and recorded changes such as removing an osprey AOC after it was confirmed the nest was gone, changing the location of secondary road corridors, and increasing the width of road right-of-ways. Three minor amendments were completed. All dealt with amendments to allow harvesting of areas depleted by either blowdown or fire. The relatively small number of amendments speaks to the high quality of the 2001 plan. The amendments were categorized appropriately, and were dealt with in a timely manner.

### **3.3.10 Contingency Plans**

There were no contingency plans on the forest through the audit period.

### **3.3.11 Annual Work Schedules**

AWSs were reviewed for each year of the audit period. Each AWS was submitted and approved for implementation the following April. The AWSs met public consultation requirements and were approved on time. The reports contained all of the elements consistent with the requirements of the planning manuals in force at the time and were consistent with the 2001 FMP. The forest operations prescriptions (FOPs) included with the AWSs were prepared in accordance with the FMPM and were consistent with the SGRs.

## **3.4 Plan Implementation**

### **3.4.1 Areas of Concern**

The 2006 plan requires the use of the NDPEG for the first time on this unit, which is a significant change in operations for the Company and the forest workers. The audit team

reviewed the process leading up to completion of the plan. There was good cooperation within the planning team in reaching the landscape requirements and successfully attaining the distribution pattern required (i.e., <20% of the blocks were >260 ha). This pattern evolved over a number of months during the plan development before the harvest volumes and the landscape pattern were achieved.

Marten core area guidelines require that 10 to 20% of land that is appropriate for marten should remain in suitable condition. The 10% minimum target is equivalent to 57,768 ha on the SRF. The 2006 plan was approved with 47,295 ha in this condition, which is 8.2% of the defined compatible areas. The analysis described this shortfall as a result of poor historical distribution of harvest in the southern part of the unit causing fragmentation. In addition, the centre of the unit had a large burn (i.e., Fire 46) that is not suitable habitat.

At the stand level, meeting requirements for individual residual stems for marten was a continual challenge during the implementation of the 2001 plan. There were frequent comments in Forest Operations Inspection Program (FOIP) and Forest Operations Compliance Information System (FOCIS) reporting, indicating that the problem was being addressed. The audit team observed a number of trees that had blown down and assume these had been left as standing residuals during harvest.

The next plan will be more of a challenge because of the complex requirements for individual stems under NDPEG. In the audit team's field sampling, we examined one stand from the 2006 harvest, which was not part of the sample, but encountered en route to another stand. Company staff agreed with the audit teams observation in the field that there were no residual conifer stems left, despite obvious conifer component in the surrounding forest. In the opinion of the audit team, this was not an appropriate implementation of the NDPEG.

The Company felt that this was an appropriate application of the FMP requirement (Appendix 3, page 4), which bases its single stem requirements on the NDPEG. The Company felt that the operator had followed the preferred species requirement of the plan. To quote the plan: "The order of preference for these trees is white pine, aspen and white spruce, followed but less preferred by black spruce, jack pine, cedar, white birch, balsam fir and larch."

It is possible that a strict interpretation of standard would provide no conifer whatsoever from a stand that is mixed. Based on our reading of the above text, the audit team doubts that is the appropriate implementation of the plan, since both black and white spruce are at the top of one list or the other. A broader reading of the entire Appendix does not contradict this interpretation.

The Company also pointed out that the harvest of this stand was outside the term of the audit. The audit team agrees, and was careful to provide direction only about issues that occurred during the term of the audit. This limits the team to either a recommendation about the plan itself, which was prepared during the term, or the training in preparation for plan (and NDPEG) implementation, which also occurred during the term.

From the audit team's interpretation, there is an issue with the implementation of the individual stems requirement. It can be addressed by clarification of the FMP through an amendment, or by adjusting the training for this harvest. We have arbitrarily chosen training as the preferred route and a recommendation is made. We have required a review of training to acknowledge that this may be a one time problem.

**Recommendation 4: Abitibi shall review training of operators and supervisory staff regarding the implementation of the individual stems requirement of the forest management plan, and its origin in the Forest Management Guide for Natural Disturbance Pattern Emulation (NDPEG).**

This Forest has three species of ungulates (i.e., moose, deer, and caribou), all of which are high profile and demand attention and resources for planning. The planning team dealt with some demanding moose habitat requirements for appropriate AOC prescriptions. In the previous IFA, the planning team was praised for their use of wide moose corridors and significant use of upland blocks, thus allowing for return harvest after adjacent green up. This approach continues, although there have only been a few stands revisited. The auditors thoroughly viewed the moose AOCs and, in all cases, the AOCs were appropriately implemented and monitored during harvest.

Riparian management activities appeared to be well-executed based on the audit team's field sample. The *Timber Management Guidelines for the Protection of Fish Habitat* (OMNR 1988), the *Environmental Guidelines for Access Roads and Water Crossings* (OMNR 1990), and the *Code of Practice for Timber Management Operations in Riparian Areas* (OMNR, 1998a) are the sources for the prescriptions. Compliance operations address occasional problems, but there was no systemic problem observed.

### 3.4.2 Harvest

The audit team inspected numerous harvesting operations on a variety of sites and conditions. Approximately 50% of the timber harvest on the SRF was implemented under the supervision of Abitibi, while the balance was harvested by three overlapping licensees (i.e., Buchanan Forest Products Ltd., Thunder Bay, Ontario; Columbia Forest Products, Nipigon, Ontario; Niigaani Enterprises Inc., Gull Bay, Ontario). Abitibi maintains one live-in camp facility within the license area. Buchanan's operations are based from portable camp facilities. Operations within reasonable driving distance may be operated on a commuter-type basis.

The type of equipment used to harvest and move timber to roadside was primarily comprised of full-tree feller bunchers, grapple skidders that move the wood in full-tree form to roadside, and delimbers used to remove branches and treetops at roadside. Cut-to-length equipment, which removes branches and treetops as well as sorts the trees into marketable log lengths at the stump, had also been deployed in a few of the blocks that were visited. Log sorting into various products (e.g., sawlogs, pulpwood, and veneer) is performed at roadside and logs are piled by mill destination. In some circumstances, in-

bush chipping units have been employed in blocks where volume recovery using other types of equipment may be uneconomical.

Observations at all harvest locations visited by the audit team confirmed that utilization practices were generally good to excellent. While there were some instances of non-compliance found during our site visits, they appeared to be minor, isolated cases. A few high stumps were observed in areas harvested with cut-to-length equipment where terrain conditions were challenging. Rutting that could be considered a concern was noted in one of the inspected blocks. A review of the compliance reports completed for this particular block found that the site disturbance had not been reported. This lowland block had been harvested in late winter season (March), when frost conditions may have started to deteriorate. There were substantial volumes of processed wood that were not hauled and left at roadside, confirming that spring break-up had occurred earlier than expected. The Company's ISO/CSA Environmental Management System (EMS) directs operators to stop immediately if rutting occurs. Given that less than 5% of this particular area showed signs of rutting, it appears as though this guidance was followed. The auditors did not view any EMS non-conformance reports to verify that this was supported with the Company's certification program.

No obvious pattern of non-compliance was apparent over the course of our visits of the harvest operations. There was strong evidence in the field that all harvest blocks are flagged in advance of the operations, which has kept the number of trespasses low. The Company and overlapping operations are utilizing global positioning system (GPS) technology to establish the harvesting boundaries, which has considerably increased the accuracy of the layout.

The compliance inspection program appears to be effective. Harvest blocks are normally inspected on the ground by certified inspectors and periodically by helicopter. Progress of the harvest is noted in the compliance reports by the compliance inspector. The audit team's site inspections verified that non-compliances detected by the compliance inspectors were reported and dealt with appropriately. With only the very few exceptions noted above, harvest operations were very well implemented and were in compliance with all applicable legislation and regulations. Harvest operations were consistent with FOPs and were appropriate for the specific site conditions that were encountered. FOPs are initially assigned on a stand basis when the FMP is prepared, based on local knowledge, experience, and anticipated site conditions. The FOPs allow flexibility for the Senior Operations Forester to finely adjust the harvest and silviculture prescriptions, depending on local site conditions. Company staff conducting the pre-harvest block layout, or in-progress and post-harvesting compliance inspections, map any proposed changes from the original FOPs. Changes are then appended to the AWSs.

All operators made exceptional efforts to protect streams previously unidentified in the forest inventory. When such instances were encountered, operations were modified to accommodate the newly discovered value. Appropriate reserves were established along the previously unmarked streams so that heavy equipment would avoid crossing them. Operators are instructed to stay at least three metres away from the newly identified



streams, and an appropriate buffer is applied when required. Performance in terms of snag retention within the harvest areas conformed to the applicable guidelines in the term of the audit. We note above a concern with training regarding the application of the NDPEG in the new plan.

Harvest sites were virtually spotless with very little industrial garbage being found.

Abitibi conducts an effective program to reduce roadside piles of logging debris left following areas being harvested with feller-buncher equipment. Debris piles are normally "fluffed-up" to ensure more complete consumption of the debris when burned. There were a few instances noted where slash debris had not been burned.

A sampling of evidence shows that harvest areas observed in the field were properly recorded in the required tables and maps that accompany the Annual Reports. Comparisons of the Annual Report depletion maps and detailed harvest tables suggest that the depletion information is accurately recorded. Inspection of the documentation revealed that harvest operations were properly approved in the FMP (or FMP amendment) and applicable AWS. Cutting Approvals, Authorities to Haul, and compliance monitoring reports are properly processed.

### **3.4.3 Renewal**

Over the first four years of the five-year audit term (2001-2005), approximately 15,244 ha were regenerated, which represents 58% of the planned renewal program. The shortfall in target achievement is attributed to the low achievement in natural renewal, where only 23% of the planned target has been reached. It is evident that the Company's renewal program is somewhat lower than harvesting levels over the same four-year period (18,375 ha depleted versus 15,244 ha renewed).

The largest proportion of the renewal program relies on artificial treatments, consisting primarily of planting and seeding. Mechanical site preparation usually precedes the artificial renewal treatments, however, there have been instances where suitable planting microsites were available following harvesting and direct planting proved a viable option. Various arrangements of Bracke scarifiers were the primary types of mechanical site preparation equipment employed following harvest. These lighter forms of mechanical site preparation are confined to upland sites. Lowland sites are typically left for natural regeneration, where careful logging around advanced growth (or "CLAAG") is practiced during the harvesting phase on these sites. Chemical site preparation using Vision (glyphosate) applied with rotary-winged aircraft on highly productive sites controls unwanted vegetative competition that would otherwise inhibit growth of more desirable species. The planting program exclusively uses container stock. Species planted are primarily black spruce, white spruce, and jack pine, with lesser amounts of red and white pine. The planting of red and white pine coincides with one of the objectives of the 2001 FMP to retain these uncommon species on the landscape. Aerial seeding of jack pine is

practiced on suitable sites where competition is expected to be light or conditions exist that would hinder planting, such as shallow soils.

Slash pile burning is conducted on a regular basis, which was evident during the audit team's field inspections (Figure 4). There were only a few instances, particularly winter harvest sites, where slash piles remained unburned. Some shortfalls in the slash pile burning program were due to uncooperative weather. Following burning, the recovered sites are either planted with container stock or seeded to jack pine with Cerkon cones. Abitibi has been achieving good success with the cone seeding process. No prescribed burning other than the slash pile burning was conducted over the audit period.



**Figure 4. This photo shows land reclaimed by burning the slash pile. The reclaimed area has been planted.**

Natural renewal is frequently prescribed on sites where hardwood species such as poplar and white birch predominate, on lowland sites that preclude the use of mechanical equipment, or on sites where conditions exist that would favour natural regeneration, such as spruce on lowland sites. Natural renewal was projected to occur on 10,729 ha, which comprises approximately 40% of the total planned renewal operations. Only 23% of this target was reached during the audit term (based on four years of data), due to a decline in harvesting lowland sites and decisions by the Company to artificially treat some mixedwood stands that were originally scheduled for natural renewal. This apparent

conversion was done on sites that were suitable for softwood, and probably had been previously.

In the field, the audit team observed numerous examples of silviculture treatment packages at various stages of implementation. Normally, renewal occurs within one or two years following harvest. One year following both artificial and natural renewal treatment, treatment areas are inspected to assess their status and determine if further follow-up treatment is required.

Planting stock performance is monitored through a system of sample plots that the Company establishes annually. One-hundred tree sample plots are planted at a specific location and staked for each stock type planted annually. The sample plots have been planted since 1998 and are assessed annually for performance and survival. Stock showing signs of poor growth and survival will warrant more intense follow-up in the renewal blocks where the same stock was planted operationally.

Renewal areas are assessed again for progress and to determine if they have attained a free-growing condition meeting the standards that are assigned by FOP. Timing of this reassessment depends on the desired forest unit, but generally occurs five years following the renewal treatment. Lowland spruce areas prescribed for natural renewal may not be assessed for seven years following treatment.

In general, the audit team witnessed a very effective renewal program, where sites were treated promptly and with appropriate prescriptions.

Conformity to the SGRs was apparent and the treatments being applied appear to be effective on the renewal sites that were visited. The prescribed practices for each site and the desired future forest unit were suitable, consistent with the FOPs, and should maintain forest productivity. Abitibi's FOP procedure has been working effectively and facilitates planning the renewal and maintenance program annually. Areas slated for treatment were approved in the FMP and appropriate AWS, or in the amendments. Treatment areas are being accurately mapped, tracked, and reported in the required Annual Reports. The Company makes effective use of their geographic information system (GIS) to manage their landbase. Stands and treatment areas requiring follow-up work or assessment are denoted in the database accordingly. The database is queried as needed to outline treatment programs on an annual basis.

Compliance inspections of the renewal program indicate that there is excellent conformance to the AWS and other applicable legislation. There were no non-conformance incidents in the renewal program reported over the period, nor were any issues observed by the audit team.

Over the first four years of the audit term, 25,685 ha of renewal areas were surveyed for regeneration success, which represents 83% of the planned level of 30,812 ha. Of the area surveyed, 452 ha did not meet the success standard, translating to a success rate of 98% for the areas surveyed, or 25,233 ha successfully renewed. The audit team's field



visits, coupled with our examination of the documentation, confirmed that the boundaries of the sampled field locations had been properly mapped and accurately recorded in the Company's reporting system. Observations in the field supported the Company's claims of free-growing status and generally agreed with the new stand descriptors in most cases (Figure 5). There were a few instances, however, where the observed stand composition did not match the recorded stand description data provided to the audit team. FTG assessments of recovering fire areas are largely conducted by helicopter. Stand descriptions that are observed during the flight are written on maps. These maps are turned over to the GIS department, where both spatial and tabular attributes are transferred to the forestry database. For areas that are not deemed FTG, reasons are noted (e.g., needs more time to grow or brush competition needs to be controlled) and the area is scheduled to be re-examined in future years. Formal ground assessments may be conducted, albeit infrequently, using a method similar to that described in the *Well-spaced Free-growing Regeneration Assessment Procedure for Ontario* (White *et al.* 2005). OMNR staff have occasionally accompanied Company staff during the FTG flights. The Company may want to consider methods to increase the accuracy of their ocular assessments, such as establishing a series of sample areas that would allow observers to calibrate their ocular assessments.

It should be noted that the Company is currently investigating other remote sensing methods of conducting free-growing assessments as a means of increasing accuracy and reducing time and costs associated with conducting the surveys. New methods being considered are the use of large-scale digital aerial colour photography and the use of medium scale digital colour photography.

#### **3.4.4 Tending and Protection**

Tending activities occurred on 15,237 ha over the first four years of the 2001-2006 audit term, which included 13,559 ha of aerial herbicide application, 137 ha of ground herbicide application, and 1,541 ha of manual spacing. The Company's aerial tending program well exceeded the five-year planned target of 9,327 ha, due to the unexpected need to re-treat several stands. Manual spacing achievement slightly exceeded the target of 1,493 ha by 3%, but a shortfall was realized with ground herbicide application at only 46% of the planned 296 ha.

Manual spacing work on plantations was carried out under funding provided by Forestry Futures. Manual spacing was conducted in plantations using brushsaws to reduce stem densities.



**Figure 5. This spruce plantation was an example of a plantation declared free-to-grow.**

Ground spraying was done using backpack sprayers. For chemical applications, Vision (glyphosate) is the only herbicide used on the SRF.

In the field, the audit team observed 18 examples of tending treatments. One year following both artificial and natural renewal treatment, treatment areas are inspected to assess their status and determine if further treatment is required. The assessed blocks are prioritized in terms of follow-up treatment requirements on a 1 to 5 scale. Assessments appear to have been carried out conscientiously, as areas designated for tending treatments were in need of treatment.

In general, the audit team witnessed an effective tending renewal program, where efforts are made to apply tending treatments promptly, discriminately, and with appropriate prescriptions.

Conformity to the SGRs was apparent and, in most cases, the treatments being applied appear to be effective on the tending treatment sites that were visited. Application inconsistencies in the aerial chemical treatments were noted in a few blocks where coverage was not complete or the effectiveness of the chemical was unsatisfactory. The prescribed tending for each site and the desired future forest unit were suitable, consistent

with the FOPs, and should maintain forest productivity. In cases where tending effectiveness was substandard, the Company may want to consider re-treatments. Areas slated for treatment were approved in the FMP and appropriate AWS, or in the amendments. Treatment areas are being accurately mapped, tracked, and reported in the required Annual Reports.

**Suggestion 4: Abitibi should assess the aerial tending treatment blocks where treatment effectiveness has been unsatisfactory to determine the cause for the results and take appropriate action to correct this matter.**

Compliance inspections of the tending program indicate that there is general conformance to the AWS and other applicable legislation. The one non-compliance incident that was reported over the period was deemed to be of "moderate" significance and involved a 16 ha poplar stand that had been partially harvested and mistakenly included for aerial tending treatment on the AWS maps. The error went unnoticed until a post-treatment compliance inspection was conducted by OMNR staff. To address the error, Abitibi has site prepared and planted the harvested portion of the poplar stand and underplanted the unharvested portion of the poplar stand, all at its own expense. This matter is now considered resolved. The auditors concur with the conclusions of the report regarding the follow-up actions taken by OMNR and Abitibi.

No protection treatments against insects or diseases were carried out during the audit period.

### **3.4.5 Renewal Support**

In support of the renewal program, Abitibi has annually conducted or coordinated activities such as cone collection and planting stock production. The examined documentation suggests that seed inventories and the stock production programs have been adequate to support the current and projected renewal program on the SRF, except for white pine. Company staff did indicate that more effort was needed to bolster its white pine seed inventory.

Up to the end of the 2004-2005 season, Abitibi had collected over 2,084 hectolitres of cones, comprised of jack pine (1,885 hl) and black spruce (199 hl). It is difficult to determine if Abitibi has achieved their planned cone collection target, since the planned figures in the 2001-2006 FMP are listed by numbers of seeds, while the Annual Reports use hectolitres as the unit of measure. Over the same four-year period, 69 million jack pine seeds were dispersed in the aerial seeding program. Abitibi contracted out the production of over 13 million container planting stock production targets during the first four years of the audit term, compared to its five-year target of nearly 19 million trees. Final numbers should show the Company within 15% of its five-year target.

All seed used in the production of Abitibi's black spruce and jack pine stock production program is derived from seed that is collected at a first generation seed orchard. Jack

pine seed used in the Company's aerial seeding program is acquired from general collection sources.

Abitibi is one of 11 members of the Superior-Woods Tree Improvement Association (SWTIA), which is a member-driven cooperative organization with a mission to carry out tree improvement activities for its member companies in northwestern Ontario. SWTIA's purpose is to coordinate industry efforts to establish and maintain seed orchards that deliver improved seed for reforestation, and to work with industry partners to carry out first and second generation tree breeding programs for jack pine and white spruce.

Abitibi manages one of the black spruce orchards for SWTIA (Nikulasson Black Spruce Seed Orchard), which is located on Abitibi's former Freehold Block 3 near Raith. Abitibi has since sold its freehold block, but has signed a 20-year easement agreement with the new landowners that allows the Company access to the tree improvement areas. Family test sites for black spruce and jack pine managed by Abitibi are located at the same site, and another black spruce family test maintained by the Company is located north of Garden Lake. The Nikulasson Black Spruce Seed Orchard is a first generation orchard that produces all the black spruce seed requirements for nursery stock production for the SRF, the Black Sturgeon Forest (Bowater), and the Dog River-Matawin Forest (Bowater). This first generation orchard was established from seed selected from the best trees within the seed zone. The resulting seedlings were planted into the seed orchard and family test sites. Gain estimates from the first generation are about 15% in terms of volume.

Abitibi and Bowater cooperate in the management of the black spruce and jack pine tree improvement program. Abitibi manages the black spruce program, while Bowater manages the jack pine program. Both companies are cooperating in the initial stages of establishing a second-generation black spruce seed orchard.

#### **3.4.6 Access**

The SRF is well accessed. Roads are used extensively by the public and the forest industry on the adjacent Black Sturgeon and Lakehead forests. The auditors travelled all of the major roads on the Forest, and, in doing so, witnessed a comprehensive sample of road construction and maintenance on the Forest.

Roads closures were completed in a manner that was consistent with the FMP. Water crossing removals were well done. The removals resulted in stable slopes leading to streams and should result in minimal and acceptable levels of sedimentation into these streams over the long-term.

The audit team was required to select a sample of 10-20% of the primary roads that were maintained with funding under the Roads Maintenance Agreement in 2005 and determine whether there was evidence that the work was performed that was described in invoices

submitted under the agreement. The auditors reviewed a summary of the invoices submitted. The work included sanding, grading, gravelling or ploughing that occurred on 497 km of road on the Forest in 2005. The auditors' inspection of the roads, based on eight crew days of travel on each of the primary and most of the secondary roads, covering approximately 300 km of road on the SRF, showed that they are well maintained. Funding from the Road Maintenance Agreement covered just over 45% of the road maintenance costs for 2005.

A recommendation was noted in the last audit to improve maintenance on the Graham Road and the auditors remain concerned with safety on that main road. The Graham Road is difficult to maintain. Gravel is not common in that part of the Forest, and the materials available for road construction make maintenance inherently difficult. Maintenance has improved since the last audit and the auditors witnessed many kilometres of recently graded surface.

However, the auditors witnessed several pulp trucks travelling on the road with pulp sticks jutting out from their loads. Pieces of pulp lying at the roadside were a frequent observation, and verbal information provided to the audit team indicated a significant clean up of this littered pulpwood had been completed shortly before the audit team arrived. All of this suggested that pulp sliding off of trucks occurs more than it should. Given the level of cottage, recreational, and industrial traffic on this road, the auditors conclude the loose loads present a safety hazard and recommend that steps be taken to eliminate this.

**Recommendation 5: The Company and OMNR shall ensure that pulp loads are properly secured, particularly on the Graham Road, to ensure that no pulp sticks fall off trucks in transit, and that no pulp sticks are left on the road surface.**

### **3.5 Systems Support**

#### **3.5.1 Human Resources**

The two criteria related to human resources focus on awareness and training of employees. Staffs of both the Company and the OMNR know their employment responsibilities. Both have well developed policies covering the required elements of sustainable forest management and, over the last decade, they have become part of the culture of each. The Company's commitment to the CSA certification and its EMS has meant that field staff have been well briefed on regulations, legal responsibilities, and sustainable forest management policies, objectives, and plans. Every employee is aware of this commitment and has the appropriate training modules assigned.

Training materials provided by OMNR and the Company were examined. A pocket sized "Forest Environment Management System" guide is available to staff and contractors. This booklet helps to reinforce key training messages. All subcontractors are provided

training annually. There is a strict start-up procedure to ensure that workers are aware of sensitive issues and adequately trained.

Interviews confirmed that the level of training appears adequate, even with the multi-layered approach to woodlands management that exists on the SRF. The audit team discussed training opportunities with various workers and found that most had access to training, although it was usually closely related to their current responsibilities.

The Company has a very small staff dedicated to managing this forest. Their performance was among the best the audit team has viewed anywhere in the Province. Nonetheless, there was information that was not delivered to the audit team on time, an event attributed by the auditors entirely to the excessive workload of the staff and to an extraordinary fire season that engulfed the field audit. In the scope of the total work undertaken by SRF staff, these audit information requests are of small consequence. However, it is an indicator that more human resources should be dedicated to managing the SRF.

**Suggestion 5: Abitibi should dedicate more human resources to managing the Spruce River Forest in order to comply with information requests in a timely manner.**

OMNR training did not appear to be as consistently managed as that of the Company. Part of this may be due the fact the Company's certification system requires a well structured training matrix, and OMNR's program is not as clearly defined. Nevertheless OMNR staff had received sufficient training to complete assigned duties.

### **3.5.2 Documentation and Quality Control**

Abitibi has excellent backup procedures in place for current information. We explored the corporate commitment to some of the older planning information on the unit. It is important for planning teams to have access to older records to confirm natural landscape patterns. The Company has prudently put aside many of these old records. Discussion showed that the Company is aware of the situation and is fairly sure the records are secure.

**Suggestion 6: The Company should examine their facilities for archiving old records and plans to ensure there is no deterioration.**

OMNR's records for this forest were excellent and substantially improved from the last audit. The auditors had no difficulty retrieving requested information from OMNR in a timely manner.



### 3.6 Monitoring

#### 3.6.1 General Monitoring

The Thunder Bay District initially prepared a District Compliance Strategy that covered the five-year period from 1999 to 2004. The Strategy was revised in 2001 and again in 2003. The Strategy provides guidance for implementing the compliance monitoring program on all aspects of natural resource management, protection, and maintenance that falls under the jurisdiction of OMNR within the Thunder Bay District. The Strategy broadly describes the District's natural resources base that is to be monitored, including significant features related to compliance. The priorities, objectives, and options listed in this document form the basis for developing the Annual Implementation Schedule within the Annual Compliance Operating Plan (ACOP).

Thunder Bay District prepared five ACOPs during the audit period. Planned compliance activities for monitoring the Forest's programs included conducting random harvest inspections, conducting random inspections of the AOCs identified in the FMP, inspecting water crossings, conducting annual compliance meetings with forest industry staff, conducting joint inspections with forest industry staff, entering compliance reports into the compliance database, and making inspection reports available to the LCC. Quantitative targets were assigned to most of the measures listed in the ACOP. Outcomes were reported at year-end, however, there was no evaluation stating how well the targets were achieved.

Evidence gathered through field site inspection and compliance report review suggests that the level of monitoring is suitable. District staff conduct verification inspections of Abitibi (and overlapping licensee) compliance inspections, water crossing inspections, and construction activities, and spot check for adherence to forest fire prevention regulations. District compliance staff report that Abitibi conducts an effective compliance monitoring program, however, submission of routine compliance reports may not be as timely as stated in the Company's compliance plans. Particular improvement in the SRF compliance monitoring program has been noticed since Abitibi received its CSA certification in 2004, according to District staff. Certification has had a positive impact on the Company's attitude and its approach toward compliance monitoring.

There are currently two staff at the OMNR Thunder Bay District office that are certified compliance inspectors and conduct inspections on a regular basis on the SRF. This level of compliance oversight by OMNR appears to be effective.

Abitibi prepared a five-year Compliance Plan covering the 2001-2006 period, which was approved by the OMNR Thunder Bay District Manager on January 5, 2001. This five-year plan met all of the requirements outlined under the OMNR's *Guideline for Forest Industry Compliance Planning* (OMNR 1998b). The plan includes a background description of the SRF, as it relates to the compliance monitoring program, as well as comprehensive sections dealing with goals, objective and strategies. Monitoring and

reporting procedures are outlined, measures for dealing with non-compliances are described, and roles and responsibilities for implementing the compliance program are defined. The plan is very complete and well written.

Abitibi has also prepared an Annual Plan of Action for each of the five years within the scope of the audit (2001-2006). The annual plans are included as appendices in the respective AWSs, with both documents being reviewed and approved concurrently. The priority areas for compliance efforts (e.g., AOCs, water crossings, wildlife prescriptions, and wood utilization), which are normally based on compliance issues that have occurred during the previous year or expected high risk areas for the upcoming operating season, are listed. A protocol for monitoring, inspecting, and reporting is described, including procedures to be followed when new values or non-compliances are found. Criteria for inspection data reporting are listed as well. Overlapping licensees are expected to implement the annual plans on their respective operations. Abitibi is ultimately responsible for all compliance activities on the Forest.

All compliance monitoring plans were approved prior to April 1 each year. A sampling of cutting approvals demonstrated that issuance dates did not precede the date of approval of the compliance monitoring plans.

OMNR Thunder Bay, Abitibi and two of the three overlapping licensees (i.e., Buchanan Forest Products Ltd. and Columbia Forest Products) file and submit their forest operations inspection reports under the Provincially-sanctioned FOIP, which is an Internet-based interactive computer software program. One overlapping licensee (Niigaani) does not retain certified inspectors on staff, so Abitibi conducts the inspections for their operations.

A sampling of the reports filed by all organizations confirmed that reporting procedures outlined in the respective compliance plans are generally being followed. Non-compliances are being reported within the prescribed timeframes, however, routine reporting, in progress reports, for example, is not always being submitted in a timely fashion.

**Recommendation 6: Abitibi shall ensure that all compliance reports are submitted within the timeframes outlined in the Forest Information Manual.**

Compliance reports are being filled in with the required information elements. Reference and location information is complete and accurate. Maps and photographs accompany many of the Abitibi-produced reports. More recently, maps depicting the route actually traversed by the inspector are also being added to the reports. Since both Abitibi and OMNR make extensive use of GPS technology, inspection sites can be conveniently located. Non-compliances are addressed promptly with joint inspections involving OMNR, Abitibi, and the contravening party. Communication between the two organizations is good. The Company's inspection and reporting frequency is being implemented according to its compliance plan. OMNR's compliance targets are being attained for the most part, with some minor shortfalls due to workloads or staff shortages.

The Company possesses the capability to compile the data necessary to measure its progress with the sustainability indicators. Much of this data can be derived from the Annual Reports and FMP. Abitibi will be in a good position to carry out the appropriate analysis when it is required.

The 2001 FMP proposed that monitoring take place to assess the effectiveness of treatments that were exceptions to the implementation guides. The treatments to be monitored as exceptions are discussed in Section 3.6.2 of this report.

### **3.6.2 Annual Report**

For the first three years of the audit term, the Annual Reports consisted of two parts. A spring submission and a fall submission, which were due April 15 and November 15, respectively, were prepared in accordance with the 1996 FMPM. Starting in 2004-2005, Annual Reports were submitted as a single package, due by November 15 of each year, and prepared in accordance with the 2004 FMPM. Abitibi was reasonably close to meeting the submission requirement dates. In the case of the 2003-2004 Part 1 submission, the Company's tardiness was blamed on a failed computer hard drive.

Starting with the 2002-2003 Annual Report (Part 1), Abitibi has been submitting the Annual Reports through the Forest Information Portal. Prior to the establishment of the Forest Information Portal, it was noted that OMNR's Head Office issued direction to its staff in September 2000 (revised to Version 2 in November 2002) listing a protocol for reviewing the Annual Reports, which included deadlines that had not been specified in the 1996 FMPM. The protocol included a checklist that the OMNR staff reviewer was required to complete, showing the date the Annual Report was received and the date that the review was completed. A review of these checklists at the OMNR Thunder Bay office revealed that the checklists had only been partially completed or not completed at all. Given that the OMNR approval dates lagged by as much as 11 months, the auditors came away with the impression that OMNR Thunder Bay does not place a high priority on reviewing the Annual Reports.

It should be noted that there are recent developments regarding the review of Annual Reports, which were just released to OMNR staff in 2005. The most recent direction reflects the changes embodied in the 2004 FMPM and applies to preparation of the 2004-2005 Annual Reports and subsequent reports. Under the new process, the OMNR District must review the Annual Reports at specified milestones, but has the option of accepting the Annual Report "as is" in other reporting years.

The format of the 2000-2001 to 2003-2004 Annual Reports conformed to the requirements of the 1996 FMPM and the information reported in the tables appeared to be consistent with the objectives of the FMP. Tables, maps, and spatial coverages appear to have been submitted in the formats required by FIM.

The 2003-2004 Annual Report included Table AR-3, *Annual Report of Planned Clearcuts*, as required under the phase-in requirements of the 2004 FMPM, and Table AR-13, *Annual Pesticide Summary Report for Aerial and Ground Applications*, as required by FIM. The text associated with these tables also conforms to the 2004 FMPM requirements.

The Annual Reports are of good quality, but the level of analysis and commentary is inconsistent across different sections of the reports. Using the 2001-2002 Annual Report (Part 1) as an example, this report only contains a page and a half of text. Most of the text discusses the progress made with the renewal, tending and protection programs, however, there is no discussion on the effectiveness of road use management strategies nor any comments on the results of the compliance program, as required by the FMPM.

The composite maps that accompany the Annual Reports are digitally produced at a 1:50,000 scale, are neatly laid out, and are in accordance with the FIM requirements. Each map includes a key map enabling the reader to orient him/herself readily. In some cases, the map legends were cryptic where acronyms had been used, and no interpretation was provided on the map itself or in the Annual Report text.

Explanations for any significant deviations between actual level of operations and AWS forecasts is not provided for many of the activities. Evaluations of achievement are largely confined to the planned FMP targets, whenever such analysis is provided. Not all activities are evaluated. For example, there is no evaluation provided on the success of the road construction program. When rationale is provided for deviations, it is reasonable.

**Recommendation 7: Abitibi shall ensure the Annual Reports contain more descriptive text explaining reasons for deviations for all aspects of forest operations, compliance, and analysis on progress towards achieving forest management plan and annual work schedule targets.**

Table AR-14 in the 2004-2005 Annual Report appears to be filled out incorrectly and does not provide any meaningful results, contrary to its intent. The forecasted numbers do not reflect the planned values that were presented in the 2001-2006 FMP. Abitibi should seek direction from OMNR on how this table should be properly completed so that the results are more purposeful.

A review of the forest operations inspection section of the Annual Reports reveals that, although the Company and OMNR are reporting non-compliances through Tables AR-12.1 and AR-12.2 (and Tables AR-12 and AR-13 in the most recent Annual Reports), the Annual Report text could use more substance in describing the nature of the non-compliances and the reasons for these occurrences. Determining the precise nature of the non-compliances, the reasons for their occurrences, and the types of actions taken to address the non-compliances required the auditors to review all of the compliance reports associated with each non-compliance. There was no concise summary of the non-compliances provided in the Annual Reports, as required by the 1996 FMPM.

There were 41 non-compliances reported over the audit period, out of 650 compliance inspections that were conducted by the Company. Only one non-compliance was reported in the last year of the audit term (2005-2006). Twenty-nine non-compliances were reported by OMNR, based on the 107 inspections it conducted. All of the non-compliances were assigned a level of significance of "minor" or "moderate". There were no "significant" non-compliances reported during the audit term. Some of the non-compliances reported by OMNR are follow-up reports on non-compliances reported by the Company; therefore, some "double-counting" may be involved with the OMNR data. Abitibi's EMS includes strong employee training, preventative action, and compliance components. The establishment of the EMS has had a positive impact on compliance and adherence to rules and regulations. This outcome was corroborated by statements from OMNR and Company staff and is further reflected by the Company's compliance performance. The audit team's field visits did not reveal any significant issues where non-compliance was not being reported.

For the non-compliances that were recorded, the actions taken in response to their discovery were reasonable. Most of the non-compliance situations were remedied through self-corrective actions by the responsible party soon after the infraction was discovered. Repair orders and warning letters were sent to responsible parties when warranted. There were no penalties imposed during the audit term.

An exception that permitted clearcut harvesting within the "heavy development buffer zone" of osprey nests was approved in the 2001-2006 FMP. A monitoring plan for the exception is described in the FMP. Monitoring for the effectiveness of the osprey exception, which is designed to be conducted annually, is mentioned in the 2004-2005 Annual Report. It is unclear if monitoring for effectiveness was carried out in previous years. The text in the Annual Report states that OMNR will be preparing an exception monitoring report upon completion of the 2001-2006 FMP term.

Full tree harvesting on Ecosite 11 and Ecosite 12 in northwestern Ontario is considered an exception to the silviculture guides. There was one Ecosite 12 stand allocated for harvesting on the SRF during the 2001-2006 audit term. A regional monitoring system has been devised by OMNR and is described in the handbook *Full Tree Harvesting of Ecosites 11 and 12 in Northwestern Ontario: Monitoring Procedures and Best Management Practices* (ES 11/12 Soil Monitoring Procedures Working Group 2001). Abitibi is a contributor to this regional initiative to monitor the impact of full tree harvesting on these very shallow sites. Abitibi has harvested the one Ecosite 12 stand that was allocated during the term and has established and collected data on one monitoring plot it established according to the handbook procedures. The collected information has been forwarded to OMNR research staff for evaluation as part of its broader regional monitoring initiative. Unfortunately, this monitoring activity was not effectively reported in any of the Annual Reports, as suggested by the 1996 FMPM.



**Suggestion 7: The Company should ensure that progress with regard to any exceptions monitoring program being conducted on the Spruce River Forest be reported annually in the Annual Reports, as required by the Forest Management Planning Manual.**

The results of the previous IFA are not discussed in any of the Annual Reports submitted over the 2001-2006 period, contrary to the requirements of the 1996 FMPM for the 2001-2004 period.

**Recommendation 8: The Company shall ensure that future Annual Reports prepared for the Spruce River Forest comply with Part E, Section 4.4 of the 2004 Forest Management Planning Manual, which describes the requirements related to Independent Forest Audit Action Plans.**

### **3.6.3 Report of Past Forest Operations**

The 1996-2001 Report of Past Forest Operations (RPFO) prepared for the SRF was reviewed for this audit. The RPFO contains most of the tables required under the transitional provisions in the 1996 FMPM (e.g., RPFO-1, 3, 4, 6, 7, 8, and 10). Table RPFO-14 (*Summary Report of Managed Crown Forest Available for Timber Production*) is required but missing. Text specifically stating why this particular table could not be completed would be helpful. Although not required, the Company has also included Tables RPFO-2, 5, 9, 11, and 12.

The area recorded as depleted due to insect activity in Table RPFO-1 is questionable, since the event does not meet the definition of "depleted area" according to the FMPM. There was no loss of volume, nor was any renewal required.

The text of the RPFO offers comparisons between planned and actual levels of operations, however, in a few cases these tend to be at a summary level. The analysis for some tables could have been expanded and reasons offered for the deviations from planned activities. For those subject areas where explanations for the deviations from planned levels were provided, the explanations were reasonable.

As noted in the phase-in requirements, not all of the RPFO tables can be completed for RPFOs prepared up to 2007. The absence of this information renders it impossible to conduct some of the analysis that meets the full requirements of the 1996 FMPM.

The assessment of forest sustainability section is brief, as expected, since many of the indicator data are unavailable. However, the Company did provide discussion and rudimentary analysis of the available information, which is included in the *Summary of Total Area Under Management* and the *Summary of Managed Production Forest by Forest Unit*.



The section dealing with the achievement of management objectives could be improved and the discussion expanded. For example, the text around the Sustained Yield objective focused on the balsam fir conversion strategy only. There were likely other strategies/targets associated with this objective that are not included in the discussion. It would have been beneficial if the text listed each objective from the 1996 plan, followed by an assessment of achievement and discussion.

Text around the Environmental Protection Strategies notes that there were two instances of significant non-compliance over the reporting term, yet there is no description of these instances in the text that analyzed Tables RPFO-12.1 and 12.2, as required by the 1996 FMPM.

**Suggestion 8: Abitibi should provide more substantive analysis when preparing documents that evaluate performance or achievements. Conclusions and recommendations should be included in the text of such documents.**

The Company considered the conclusions of the RPFO in preparing the 2006 FMP. The report generally concludes satisfaction with the results and progress being made on the Forest, based on the objectives, strategies, and operations conducted over the 1996-2001 period, and suggests that the Company continue with the same management direction for future plans.

The 1996-2001 RPFO does not explicitly discuss how successfully the selected management alternative was implemented since an analysis of management alternatives was not required for FMPs prepared at the time. Additionally, Table RPFO-2 (*Summary Report of Depletion Area: Comparison to the Selected Management Alternative*) was not required to be completed for this RPFO, however, the Company has completed it. The text draws a connection between Tables RPFO-2 and RPFO-1 (*Summary Report of Depletion Area*), but offers no explanations for deviations such as projected (25,787 ha), planned (12,949 ha), and actual (16,316 ha) reserves areas. The only explanations for deviations refer to the harvest (in the discussion on Table RPFO-1), which state that labour disruptions, the effects of spruce budworm-related mortality, and a lack of markets were responsible for the various shortfalls. These explanations appear to be reasonable.

Comparison of planned versus actual wood harvest volumes indicates that there were shortfalls at all but one of the mills that source supply from the SRF. The shortfalls ranged from 86% to the Provincial Papers Mill (poplar) and Buchanan Northern Hardwoods (white birch) to 7% to Northern Sawmills (Buchanan) (softwood). Reasons for the shortfalls described in the text include the availability of more economical wood supplies elsewhere and low demand for residual products (e.g., no demand for birch chips). Deliveries to the Abitibi Mission Mill were 440,539 m<sup>3</sup> over the period, which is 35% of planned. The text states that this figure is misleading, as it does not account for the sawlog/pulpwood exchanges that take place between Abitibi and the Buchanan Forest Products Ltd. sawmills, but no indication is provided as to how this exchange takes place. It was noted that the Buchanan harvest operations did not deliver any hardwood veneer to the Nipigon Plywood Mill during the period.

There is no substantive discussion in the text of the RPFO on emerging issues. Causes for deviations are noted, but are not followed up with possible recommendations or strategies for addressing these issues in future FMPs. The explanations for the deviations are reasonable.

The Company attempted to complete Table RPFO-9 (*Summary Report of Harvest and Regeneration Success*). Only the actual results are presented. No data is provided on how much area had been projected to regenerate. Discussion related to silviculture effectiveness focuses on the trends in terms of forest unit transitions, based on the original forest unit. The forest unit areas on the overall area have been stable. Forest unit area harvested is roughly equivalent to forest unit regenerated for the major forest units (i.e., spruce, jack pine, and poplar) over a 16-year period. More area appears to be regenerating to white birch compared to the proportion of white birch originally harvested. All of the presented figures are based on the area *surveyed*. The extent of the area *harvested* over the same 16-year period is not provided. Therefore, it is unknown how the total area reported successfully regenerated (37,027 ha) relates to the total area harvested over the same 16-year period.

The 1996-2001 RPFO provides a list and brief description of amendments to the FMP that were submitted for consideration during the 1996-2001 period. There were 17 amendment requests submitted by Abitibi during the five-year term, of which 12 were approved: two major, one minor, and nine administrative. The number of amendments is reasonable. As well, the rationale provided for requesting the amendments and the amendment classifications all appear to be appropriate for the circumstances.

Under the Conclusions and Recommendations section of the 1996-2001 RPFO, the Company generally concludes that the operations during the period were in conformance with the FMP, and that results of the renewal program were effective. Although there are no recommendations clearly identified in the text, the statements presented in this section of the report suggest that no modifications be made to the management direction of the SRF. There is a paragraph devoted to the 2001 IFA that briefly describes some of the major recommendations resulting from that audit and further suggests that the recommendations be considered during development of the 2006 FMP.

### **3.7 Achievement of Management Objectives and Forest Sustainability**

The success of forest management activities must be assessed in terms of meeting the objectives they were designed to achieve. By comparing planned activities with actual levels of achievement, it is possible to judge the success of the management plan in terms of satisfying its objectives. Forest sustainability is the overriding objective of the CFSA. By reviewing planning documents and comparing those to reports and examining trend data provided by OMNR and the Company, the auditors can attempt to make a judgment on the sustainability of the Forest.

### **3.7.1 Achievement of Management Objectives**

The 1996 RPFO lists three objectives. These are included in Table 2 of this document, along with auditor comments.

The 2001 FMP for the SRF established five objectives. Four were required by the 1996 FMPM. The Company added an objective to coincide with their efforts to attain ISO 14001 and CSA registration. The five objectives were:

- forest diversity;
- social and economic matters;
- provision of forest cover;
- silviculture; and
- environmental protection.

The objectives and targets from the 2001 FMP, and an assessment of them being achieved, are reviewed in Table 3.

**Table 2. Audit team comments regarding management objectives from the Spruce River Forest RPFO for the forest management planning period 1996-2001.**

Objective	Achievement	Comment
Sustained yield	Depletions of balsam fir due to spruce budworm had compromised the integrity of the FRI. A complete new FRI was established. The yield curves generated from the FRI reflect the balsam fir mortality.	The budworm reduced the fir component in the forest and in doing so challenged the validity of future timber yield calculations. The new inventory provided the basis to correct this known weakness, thereby increasing the confidence in estimates of future sustainable harvest area and volume.
Integrated resource management	The 1996-2001 FMP focussed on implementing moose guidelines and the centre of the integrated resource management strategy. The integrated resource management strategy has now been updated to conform to natural disturbance emulation guidelines, which has required a reduction in the amount of fragmentation for moose habitat.	The Company has complied with the requirement to harvest timber in patterns that will more closely conform to interpreted natural patterns on the landscape. The 2001 FMP states that the very small (less than 5 ha) and very large (greater than 10,000 ha) cutovers will not be implemented due to social and economic reasons, meaning it will only partially conform to the natural disturbance emulation requirements. It will be a challenge to monitor the effect of this changed harvest pattern on the sustainability of the forest estate.
Environmental protection	Responsibility for compliance monitoring was transferred to industry during the 1996-2001 planning period. There were two instances of significant non-compliance between 1998 and 2001.	The Company currently has an effective compliance monitoring program.

**Table 3. Auditor comments regarding 2001-2006 forest management plan management objectives.**

## Objective 1 – Forest Diversity objectives

Objective	Target	Achievement	Comment
<p>Landscape patterns</p> <p>- To ensure that forest management shows movement towards emulation of natural landscape patterns characteristic of site region 3W.</p>	<p>Frequency distribution of clearcut and wildfire disturbance events will move towards harvesting in patches that are greater than 1,000 ha for 78% of the area disturbed. Fifty-six percent of the disturbances will be less than 260 ha in size.</p> <p>Planned harvests: Section 2.4.3.2 of the 2001 FMP had two clearcuts planned for the 520 – 1,040 ha size class amounting to 5.2% of the landbase, followed by 5.6% in the 260-520 ha size class, 23% in the 130-260 ha size class and 66% in the &lt;130 ha size class.</p>	<p>Figure 1 in the 1996 –2001 RPFO shows clear cut frequency distributions on the forest between 1996 and 2001 as 6% for areas less than 50 ha, 10 % 51-100 ha, 15% 101-150 ha, 8% 151-200, 7% 201-260 ha, and 54% greater than 260 ha.</p>	<p>No summary is available to see if the target was achieved. Given the planned disturbances would not have met the target, it is reasonable to assume that the large frequency distribution targets will not be met.</p>
<p>Forest Unit stability</p> <p>- To ensure that forest management maintains forest diversity within the bounds of natural variation over time.</p>	<p>Harvest disturbances maintain each forest unit within defined eco-regional bounds of natural variation as measured by plus or minus 20% of the benchmark null.</p>	<p>Forest units are returning as demonstrated in Table AR 9, which lists original forest units and success in regenerating the forest to the same units.</p>	<p>Balsam fir is not returning to the landbase as consistently as other species appear to be. The mature fir component of most stands was diminished by spruce budworm. It is likely regenerating but has not grown to the point where it would be recorded in a stand description. Assuming this to be true, the original species mix is</p>

Objective	Target	Achievement	Comment
			returning to harvested areas on a regular basis and projected to be stable over the next 160 years. This objective is being met.
Balanced age class - To develop harvest strategies to minimize the impact of future age class imbalances.	To provide a predictable and continuous flow of forest products and to provide a balance of age classes over time.	Some non-commercial spacing has been completed to allow early entry onto jack pine and aspen stands.	Harvest and natural depletions will be the largest influencers on the age class balance of this forest. Figure 5 in the 1996-2001 RPFO shows spruce with a slightly moderated age class bulge and jack pine with about 50% of the area in the 1-20 age class. This shows progress towards meeting this objective, which is as much as could be expected given the timeframe considered.
White and red pine - To increase the presence of white and red pine working groups in the Forest.	Increase the presence of white pine growing stock by 50% by 2061 and increase the red pine working group to 250 ha by 2010.	The white pine working group decreased from 98 to 44 ha from 1986 to 2006. The red pine working group has not been identified from 1986 to the present.	The auditors observed regular and successful planting of white and red pine seedlings, and mature white pine trees left as seed source. There was no evidence that would confirm either species target was going to be met.

## Objective 2 – Social and economic objectives

Objective	Target	Accomplishment	Comment
To supply industrial and consumer wood needs within cost and efficiency constraints while	To provide a continuous supply of forest products to meet Company needs and OMNR directives:	Based on harvest information from the first four years of harvest, total volumes are	There is difficulty in tracking this information, as round wood volumes directed to pulp or paper



Objective	Target	Accomplishment	Comment
maintaining forest sustainability and promoting utilization of all available fibre.	<ul style="list-style-type: none"> <li>- 310,000 m<sup>3</sup> of spruce pulpwood/chips to Abitibi;</li> <li>- 227,000 m<sup>3</sup> of spruce-pine-fir tree length to Northern Sawmills Inc.;</li> <li>- 16,000 m<sup>3</sup> of poplar and 1,600 m<sup>3</sup> of white birch veneer to Weyerhaeuser;</li> <li>- up to 160,000 m<sup>3</sup> of poplar pulpwood to Provincial Papers;</li> <li>- 40,000 m<sup>3</sup> of poplar and 40,700 m<sup>3</sup> of white birch to Buchanan Northern Hardwoods.</li> </ul>	approaching 90% of planned volumes harvested.	facilities are traded for chip volumes in business-to-business agreements. Interviews with primary commitment holders confirmed they are satisfied with the volumes being delivered from the Forest. Market conditions for birch and poplar, in particular, varied toward the end of the audit period, overwhelming any harvest plans for those species. There is strong evidence that the Company and OMNR are allocating a predictable and sustainable harvest volume. It will not be a constant volume. The auditors conclude that this objective is being met.
To provide wood for potential small business opportunities and personal use consumption.	<ul style="list-style-type: none"> <li>- To explore business opportunities with local Aboriginal communities and First Nation peoples in the Forest.</li> <li>- To set aside incidental volumes of conifer, hardwood and fuelwood.</li> </ul>	<p>Niigaani Enterprises Inc. operated on the Forest for three of the five years in the term.</p> <p>The 2004-2005 Table AR-4 indicates 1,864 m<sup>3</sup> has been harvested for firewood.</p>	<p>Niigaani Enterprises Inc. has been a viable and ongoing forest harvest and silviculture company, operating on this and adjacent forests for a number of years. There was no evidence to confirm a commitment from the Company or OMNR to make wood available for other small business opportunities. The objective is being met, although OMNR or Ministry of Northern Development and Mines (MNDM) could put more effort into marketing opportunities for new business based on SRF resources.</p>

Objective	Target	Accomplishment	Comment
To ensure the coordination and application of all activities so that long-term benefits are optimized while conflicts between other programs and resource users are minimized.	<ul style="list-style-type: none"> <li>- To maintain close liaison with staff, third party operators, local tourist outfitters, First Nations, mining companies, cottagers, and fish and wildlife managers.</li> <li>- To continue to work with all user groups to avoid conflicts and resolve issues.</li> </ul>	The Company maintains positive relations with identified stakeholders. The Company has completed RSAs. The LCC runs effectively with a high level of cooperation.	The excellent relations the Company has with stakeholders has added efficiency to all levels of operations. Conflicts have been managed well, with parties interviewed expressing a high degree of confidence in dealing with Abitibi. The objective is being met.
To maintain or promote opportunities for development on the Forest.	<ul style="list-style-type: none"> <li>- To provide and maintain a range of tourism opportunities.</li> <li>- To maintain or enhance road-based tourism opportunities.</li> <li>- To provide opportunities and access for other non-forest resources such as mining exploration, berry picking, bait fishing, etc.</li> </ul>	As noted above, the Company has negotiated and signed RSAs with tourist operators, and have ongoing discussions with more. Relations are positive and progressive.	It is clear that the Company is receptive to proposals for development on the forest, but there is little evidence that the Company actually promotes opportunities as suggested in the objective statement. As noted above, promotion of economic development should be conducted by the landowner (OMNR or MNM). The Company has met its obligations under this objective.
To maintain a balance between access and access restrictions to reduce access restrictions to user groups such as cottagers, anglers, hunters, prospectors, etc.	<ul style="list-style-type: none"> <li>- Maintain existing road access restrictions where required.</li> <li>- Examine opportunities for enhanced access.</li> </ul>	Roads were closed via signage, water crossing removal, or barriers, as detailed in the roads strategy.	The FMP process has provided an ongoing platform for negotiations on access locations, enhancement, or restriction. It is a chronic issue that is being well managed by all parties. The objective is being met.
To respect/protect cultural and spiritual values on the Forest.	Minimize disturbance of cultural values.	Harvest guidelines are in place that minimize disturbance on sites identified as being of potential	The auditors viewed one site that had less than 5% rutting within an AOC identified as a potential

Objective	Target	Accomplishment	Comment
		cultural significance.	cultural site. The disturbance noted was within acceptable limits as defined by the AOC guidelines. The objective has been met operationally.

## Objective 3 - Provision of forest cover

Objective	Target	Accomplishment	Comments
To maintain a range of wildlife habitats across the landscape of the SRF.	<ul style="list-style-type: none"> <li>- Pine marten habitat: Maintain a minimum of 10% of the habitat in suitable core areas for the next 80 years.</li> <li>- Caribou habitat: Zone A – to maintain the Pakashkan Lake corridor for a maximum of 30 years. Zone B – to maintain a continuous supply of caribou habitat in patches of approximately 10,000 ha for the next 120 years.</li> <li>- Moose habitat: To maintain 5-15% late winter, 35-50% early winter, 40-50% browse producing areas.</li> <li>- Eagle, osprey and heron nests: To protect all known and active eagle osprey and heron nests.</li> <li>- Non-featured species: To maintain the amount of</li> </ul>	<p>Habitat requirements for 20 featured species have been modelled in the 2006 to 2026 FMP. The selected management alternative will provide for habitat within the bounds of natural variation over the 100-year planning term.</p> <p>Short-term harvest patterns are based on projections in the FMP. Given that harvest area and volume was within 10% of that planned, up to and including the fourth year of the plan, the objective is in the process of being met.</p>	<p>Projections in the 2006 FMP show habitat will be available for all featured species and none of the available habitat is reduced below the acceptable minimum (defined as the lower bound of natural variation) for the next 100 years. Only the available habitat for woodland caribou approaches the minimum level, but not for 150 years.</p> <p>Marten habitat does not currently meet minimum area requirements due to fragmentation from harvest in the southern part of the Forest.</p> <p>The modelling effectively assesses the influence of expected harvest and natural disturbance and, as such, provides a positive assessment of sustainability.</p>

Objective	Target	Accomplishment	Comments
	selected species habitat within 20% of the SFMM null run.		The objective is in the process of being met.
To ensure protection of aquatic ecosystems and the water quality required for maintenance of those ecosystems.	No specific targets listed.	Operations around aquatic habitat follow AOC prescriptions. Field inspections of riparian areas confirmed the prescriptions were followed and that impacts on aquatic ecosystems were effectively mitigated.	The Company has implemented some novel cut-to-shore prescriptions. Two of these were viewed in the field by the audit team. Monitoring over time will confirm the comparative development of riparian habitat. The objective is being met in that riparian and aquatic habitat is being minimally disturbed.

#### Objective 4 - Silvicultural objectives

Objective	Target	Accomplishment	Comments
To ensure the forests on harvested lands are regenerated to produce successive crops of timber in an effective, efficient, and economic manner.	<ul style="list-style-type: none"> <li>- Invest sufficient funds to maintain forest sustainability.</li> <li>- Protect Forest from fire and pest infestation.</li> <li>- Maintain area of productive forest available for forest management.</li> </ul>	Silvicultural trust fund contributions were sufficient to cover renewal operations within the audit period.	The silvicultural trust fund balance is declining as Buchanan Forest Products Ltd. has been permitted to cease contributions to the fund for approximately eight months. The Company projects there will be insufficient funds for the required silviculture for the 2007 season. This is the subject of recommendations below.
To monitor, assess, and report on silvicultural activities to ensure that all regenerated area is accounted for and to update the inventory accordingly when	Prepare annual FRI updates of disturbance and regeneration activities.	The FRI was updated with FTG and natural disturbance data on an annual basis.	The Company records on the forest estates are current and sufficiently accurate to support management activities.

Objective	Target	Accomplishment	Comments
regeneration reaches FTG.			
To develop and apply new knowledge and understanding of forest practices.	To provide research information on effectiveness of harvesting, renewal, and tending operations.	The Company is an active participant in the Boreal Forest Science Cooperative.	Auditor discussions with two Company staff showed a high degree of familiarity with research and development activities and a practical use of the results in operations.

## Objective 5 - Environmental management objectives

Objective	Target	Accomplishments	Comments
To ensure all forest management activities are implemented using established environmental practices to minimize potential negative impacts and, where possible, enhance environmental quality.	<ul style="list-style-type: none"> <li>- To minimize negative impacts and, where possible, take mitigative action through sound environmental practices in strict accordance with environmental legislation.</li> <li>- To prepare a forest compliance plan.</li> </ul>	The Company managed this effort through a series of ISO procedures.	The Company's ISO/CSA procedures are disseminated to staff and contractors in a field friendly book. The procedures provide specific instructions to follow during emergency events or when working on areas the Company has deemed as "significant aspects" in their ISO system. The procedures cover most events where the operations could have a negative impact on the environment. The audit team did not review the evaluation of the system, although it did observe the Company's EMS handbook in action, which effectively demonstrated implementation.

### 3.7.2 Review of RPFO Assessment of Sustainability

There are five forest sustainability criteria that license holders are required to monitor in order to assess their progress toward achieving forest sustainability. The five criteria are:

- Biodiversity;
- Forest condition and ecosystem productivity;
- Multiple benefits to society;
- Soil and water conservation; and
- Accepting society's responsibility for sustainable development.

There are a number of measurable indicators associated with each of the above criteria that the SFL holder can monitor. However, according to the phase-in requirements in the 1996 FMPM, license holders are not required to assemble the data for reporting these indicators until after 2007. There are seven tables containing data for the measurable indicators (i.e., Tables RPFO-13 through RPFO-19) that have to be completed when the RPFO is prepared, but the phase-in schedule only requires two of the seven tables to be completed for the SRF (i.e., Table RPFO-14 [*Summary Report of Managed Crown Forest Available for Timber Production*] and Table RPFO-19 [*Summary Report of Frequency Distribution of Clearcut and Wildfire Sizes*]).

Table RPFO-14 was not prepared for the 1996-2001 RPFO as required. However, the Company did provide an analysis of 15-year trends in Crown managed lands and a summary of managed production forest area by forest unit for the SRF (Figure 4 and Figure 5, respectively, in the 1996-2001 RPFO), using a format similar to that found in the trend analysis report.

Table RPFO-19 was submitted with the RPFO, but it is not filled out completely. The table provides clearcut sizes but not wildfire sizes. The table also does not provide a "suggested" frequency distribution for comparative purposes.

The 1996-2001 RPFO assessment of sustainability provides an evaluation of two of the indicators of the socio-economic criteria for the evaluation of forest sustainability. They include an assessment of the change in forest unit area and age class distribution, as well as the level of utilization of available harvest area.

Over the 20-year period between 1986 and 2006, the productive forest area decreased by 1,662 ha, or less than half a percent of total area. The RPFO documents changes in area that occurred within the 20-year period, but the end point shows a difference that is unlikely to be a significant contributor to forest sustainability.

Changes in forest units and age classes of those forest units changed more significantly. Spruce dominated forest units decreased between 1991 and 2001 by a total of 38,383 ha, jack pine units increased by 41,115 ha, and balsam fir units increased by 24,833 ha.



These changes are attributed to a new FRI and the approximately 100,000 ha of forest that were declared FTG during the period.

The changes noted, although they range in magnitude from 13% to 20% depending on the age class of the forest unit, will not have a significant effect on managing operations within the bounds of sustainability. All changes can be attributed to improved information, and most of the changes are recorded within the 1-20 year old age class of the jack pine forest unit. This change in information will influence harvest modelling, but the operations within these stands will not be scheduled for several decades. The managers of the forest have sufficient time to adjust to the change in forest units noted.

Harvest utilization is consistently above 80% on the Forest. Full utilization would be the preferred target, as it would confirm that the predicted economic benefit was being derived from the Forest. However, a modest shortfall in utilization normally confirms that wood supply is more than adequate for most traditional users, and varies as a result of markets for fibre on the forest. The RPFO notes that efforts are being made to explore new opportunities to use this fibre.

The RPFO states data on other indicators are not available for the 1996-2001 period. It provides comment on wildlife and water yield management in terms of meeting requirements in operating guidelines for wildlife habitat and watershed protection.

### **3.7.3 Review of Comparison and Trend Analysis of Planned vs. Actual Forest Operations**

As part of the requirements for the IFA process, the Company has collated information from the previous two and the current planning periods (1991-2006 inclusive) for the SRF, in order to provide trends information on forest sustainability. The trend analysis report submitted by the Company was received in good order and provided reasons and rationale for trends. The auditors used this report and the Annual Reports produced during the audit term to analyze sustainability. The figures used in all of the trend analysis tables have been annualized to facilitate more meaningful comparisons.

The long-term size and composition of the forest defines the ability of forest managers to address ecosystem changes. The larger the forest management unit, the more opportunity there is to implement activities that result in large scale changes to the environment.

The SRF had a slight reduction in productive area managed over the 15-year period considered. The total production forest decreased by 14,954 ha (- 2%). The net change was a result of additions and deletions from the SFL. Forty-seven thousand hectares were removed during the OLL process, while the area recorded as barren and scattered (B&S) was reduced from 193,316 ha in 1991 to 21,621 ha in 2006.

Changes in forest composition in terms of tree species were subtle. Stands dominated by balsam fir, cedar and white spruce changed by less than 2%. Stands categorized as black spruce increased from 191,089 to 231,923 ha, jack pine from 78,927 to 144,627 ha, and poplar from 65,011 to 86,923 ha. All of this increase was attributed to an updated inventory reclassifying stands from B&S to productive forest types. The reclassification was made when the stands were re-surveyed following large forest fires in the 1980s (approximately 100,000 ha) and spruce budworm outbreaks during the same decade. The trend analysis includes a further projected recovery of B&S areas during the next five-year period, which will move an additional 5,000 ha from the B&S to productive forest categories.

It was evident throughout the trend analysis, and in the audit team's review of other evidence, that Abitibi has effectively adjusted to these changes in management direction. The current Company effort to incorporate the NDPEG has resulted in a visible change in activity. Sites inspected that were harvested 11-15 years ago have impressive spruce stands growing back, but have little residual conifer and an incidental level of hardwood. Sites that had been harvested over the last five-year period have substantially more residual trees of all species. The direction to increase fragmentation, the number of mature residual trees, and the structural diversity in harvest blocks has been implemented.

Forest units describe how forest stands are categorized for management purposes. Table 2 in the trend analysis describes the forest units that were used for the 1991-1996, 1996-2001, and 2001-2006 five-year planning terms. The number of forest units was increased from six in the 1996-2016 FMP to 10 during the 2001-2021 FMP, in order to subdivide the upland forest unit into more practical operational groups, such as hardwood or softwood mix, or to more clearly identify minor species on the Forest, such as red and white pine.

Planned versus actual harvest volumes is detailed for each of the three planning terms. Harvested volume was 56% of that planned for the 1991-1996 term, 79% for the 1996-2001 term, and 88% for the 2001-2006 term. The text in the report does not address the improved harvesting performance.

The area harvested on the Forest has been less than planned for each of the three planning periods since 1991, and are roughly coincident with the volumes harvested. Fifty-three percent of the planned areas were harvested in 1991-1995, 81% in 1996-2001, and 86% in the 2001-2006 period. The total area planned for depletion during that period was 21,067 ha. The total area depleted included 15,494 of harvest and an additional 2,569 ha of natural depletion.

The trend of areas and volume harvested are similar on this forest. Overall, the percent planned volume harvested is slightly higher than the percent area harvested. The initial observation would be that the inventory overestimates volume per hectare. Given that there is consistently less area harvested than planned on this forest, it is reasonable to conclude that the remaining areas are available for future harvest.

Hardwood utilization has increased over the 1996- 2001 term. Poplar volumes harvested were 44% of that planned in 1991-1996 term, 85% in the middle term, and 97% in the 2001-2006 period.

The trend analysis shows forest regeneration in earlier terms was not as closely related to harvest activity as might be expected. In perfect conditions, every hectare harvested should be followed by a documented effort to regenerate that area. Table 4 of the trend analysis shows total area harvested during the 1991-1996 period as 29,190 ha, while Table 6 of the trend analysis shows the total area regenerated during that period, including naturally and artificially regenerated areas, as only 10,412 ha. However, Table 7 of the trend analysis, which reports on area declared successfully regenerated, reports that 92% of the area harvested during the 1991-1996 term has been successfully regenerated. The remaining 8% of the harvested areas has been classified as roads and landings and is therefore not available for regeneration. The initial discrepancy can be attributed to failing to report naturally regenerating areas until they are surveyed for FTG. The time taken to clear the discrepancy is consistent with the expected time that it would take for a naturally regenerating stand on the SRF to grow back into an acceptably stocked new forest.

The relationship between harvested and regenerated area is much tighter during the 1996-2001 period, when the area listed as regenerating (25,093 ha) effectively matched the area harvested (25,310 ha). It is too early for these areas to be assessed as FTG, which is the final measure of the effectiveness of the regeneration program.

The area harvested for the 2001 -2006 period totals 23,165 ha. Areas have been designated as naturally regenerating on 4,496 ha and artificially regenerated areas total 14, 605 ha. During this period, 10,239 ha were mechanically site prepared and 18,317 ha received mechanical or chemical tending treatments. The evidence gathered through the field audit found that sites visited had been treated as prescribed, and all were responding as expected. Based on the Company's strong performance in assembling accurate information at the end of a planning period, and the quality of the work performed on the ground, the audit team is satisfied that the SRF is growing back as indicated in the trend analysis.

The area categorized as B&S on the SRF has been reduced dramatically. For the 1991-1996 term, 193,000 ha were listed as B&S. This was reduced to 21,260 ha by the end the 2001-2006 term. This is an impressive accomplishment over a 10-year period. The decline in B&S areas has paralleled increases in jack pine (65,700 ha), black spruce (40,800 ha) and poplar (21,900 ha).

### **3.7.4 Achievement of Forest Sustainability**

The CFSA defines as its purpose: "to provide for the sustainability of Crown forests and in accordance with that objective, to meet social, economic and environmental needs of

present and future generations.” It further states that determination of sustainability shall be consistent with two principles. They are:

- large healthy diverse and productive Crown forests and their associated ecological processes and biological diversity shall be conserved, and;
- the long-term health and vigour of Crown forests should be provided for by using forest practices, that within the limits of silvicultural requirements, emulate natural disturbances and landscape patterns while minimizing adverse effects on plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values.

This audit, as directed by the IFAPP, puts great weight on the assessment of the planning and performance of activities relating to timber extraction and how it influences the environment. The audit team has concluded that these activities are being conducted as planned, and the forest environment is responding as predicted. Timber extraction is completed in a manner that supports the sustainability of the environment on the SRF.

Evidence to support these statements start with an assessment of impacts on the soil. Road construction has the greatest impact on soils. The act of building a road results in complete removal of topsoil, compaction of the surface and subsurface layers, and the creation of a site that supports greatly retarded and modified vegetation. The impacts are obviously greatest on primary roads, diminish as the roads become less permanent, and are barely detectable on winter access only roads or on block skid trails.

Given that roads provide the only realistic access to timber and that their impacts are, therefore, accepted as a matter of realizing the economic benefits associated with timber extraction, it is reasonable to assume planning roads in a careful manner minimizes the impacts. The auditors reviewed access planning on the SRF and found it to be very well done. The planning process in Ontario requires primary road corridors be identified 20 years in advance and secondary corridors five years in advance. The SFL managers did this. Further, the actual sighting of roads directly benefited from an evaluation of potential impacts on fish, wildlife, and other forest users through the planning process. The audit team concludes that planned roads on this forest are located in a manner that reduces their impacts on the forest environment to an acceptable level.

Road construction and maintenance in the Boreal Forest inevitably means crossing streams and rivers. Poorly constructed or maintained roads can become a chronic contributor of sediment to streams, and can fundamentally change the stream habitat in doing so.

The audit team specifically inspected 23 water crossings or water crossing removals and reviewed compliance reports from the five-year period of the audit. The slopes leading to the crossings were well planned and managed. There will be some contribution of sediment to streams over time, but, on the crossings inspected, the opportunity for sedimentation was acceptably low. Water crossing removals had been bermed, sloped,

and re-vegetated. Water crossings themselves, both culverts and bridges, were well constructed.

Viewing the recovery of vegetation on sites in the FTG stage, which typically occurs 10 to 15 years post harvest, convinced the audit team that soil disturbance on harvest sites has a minimal effect on the forest soils. In every case, soil disturbance on harvest sites was less than that observed on sites that had been severely burned during wildfires. It is worth noting that even on the severely burned sites, vegetation was recovering. The audit team noted that one inspected harvest site had evidence of rutting during timber extraction operations.

The impacts of harvesting on water quality were assessed both at water crossings and on harvest sites adjacent to aquatic habitat. Comments on water crossings are noted above. Operations adjacent to aquatic habitats were consistently within practice standards established for operating in riparian zones. Buffer zones around streams were wider than required. This was largely due to a conservative approach to operations. In a few instances, buffers had been left to ensure area around unmarked streams was not disturbed. The audit team physically walked through the riparian vegetation to the high water mark on 17 sites to assess the integrity of the protection provided to the riparian zones. In all cases, the streams were left with sufficient vegetation to mitigate potential erosion from harvest sites and to provide shade to the streams to mitigate changes in water temperature.

The auditors viewed two sites where exceptions to the riparian guides had been created through cut-to-shore prescriptions. One site was harvested during the summer of 2006 and, therefore, outside of the term of this audit. Both sites were scheduled for monitoring. Both sites appeared to have been harvested without an increase of deleterious materials being deposited in the water, and both looked as though the discrete riparian area harvested would regenerate vigorously. The positive results at these two sites may encourage more aggressive management of riparian areas, thereby rejuvenating riparian habitat in a manner that more consistently emulates natural disturbance patterns.

In summary, the audit team found no evidence that timber management operations on the SRF had a negative effect of water quality.

The recovery of vegetation following timber harvest is well documented through normal operational records. The forest types harvested on the SRF have evolved through a history of natural disturbances and are naturally resilient. All sites inspected that had been prescribed for natural regeneration were growing back as expected. Planted sites that were growing softwood and depending on tending treatment had sufficient hardwood, shrub, and forbs to maintain vegetative diversity. Tracking areas from harvest to new stand establishment provided compelling evidence that the vegetation on this forest is recovering as planned and at a rate that was consistent with that predicted. The harvested forest is being replaced in a manner that ensures a sustainable and predictable supply of timber types and the habitat those timber types represent.



The audit team is concerned that deferred contributions to the SRF silvicultural trust funds may limit the ability of the forest manager to continue to regenerate the forest effectively. This has been addressed in Section 3.8 (*Contractual Obligations*) of this report.

The District wildlife biologist for the SRF spent a significant amount of time with the audit team, during which wildlife management was thoroughly discussed. Timber harvest planning in Ontario is nested within a forest management framework and, as such, all proposed harvest areas are evaluated spatially and temporally to assess impacts on wildlife habitat. The aspatial analysis conducted as part of the forest management planning process tests for the provision of suitable habitat for moose, wetland and terrestrial furbearers, marten, black bear, eagle, osprey, heron, other raptors, songbirds, cavity nesters and caribou. These species have effectively been used as indicators for other species that occupy similar habitat on the forest. Harvest is managed so that there is sufficient habitat on the Forest for each of these species for a planned period of 100 years. Sufficiency has been defined by OMNR as provision of habitat area within 20% of the bounds of normal variation.

This approach assumes that if suitable habitat is provided on a continuous basis, populations of species will occupy that habitat continuously. In that sense, current operations and planned operations on the SRF will provide a continuous and predictable supply of habitat on the forest in a sustainable manner, therefore, ensuring a continuous population of species on the forest.

It is a challenge to confirm that the individuals that make up populations of all these species actually continue to occupy the habitat deemed suitable for them. The auditors viewed very little information that confirmed the abundance of wildlife species on the SRF and, in fact, the information for most species is not available. Although this is outside the scope of this audit, it would be very beneficial for OMNR to continue to quantify the status of wildlife populations on the SRF in order to improve management capacity.

Landscape level assessments on the Forest are done at the forest planning stage and consider two indicators. The percentage of productive forest area disturbed within second order stream watersheds was reduced from 15.6% for the period of 1986 to 1995, to 12.9% for the period of 1991 to 2000. Net primary productivity was not measurably changed through the planning period.

In summary, the ecological components of the SRF, which are most likely to be influenced by forest operations, are being managed in a sustainable manner. The audit team is confident that the ecological integrity of this forest, if managed as is currently planned, will be maintained for the benefit of future generations as proclaimed in the CFSA.

The CFSA also speaks to sustainable social and economic benefits from the forest. The premise of the audit team is that if the ecological integrity of the forest is sustained, the



opportunity for social benefit will be maintained as well. Although discussions during the audit with First Nation peoples, recreationists, tourist operators, and others clearly indicated that the Forest is commonly used for reasons other than timber extraction, the audit protocol does not lead to a significant evaluation of the social use of the Forest.

The SRF is managed sustainably and in a manner that will ensure ecological sustainability over the foreseeable future. The SRF will remain a base from which social, environmental, and economic benefits can be generated over time.

### **3.8 Contractual Obligations**

The SRF is currently managed under the terms of SFL #542526, which was initially approved April 14, 1999, and most recently amended March 1, 2006. Abitibi has a number of contractual obligations that must be fulfilled. This section reviews the Company's success in meeting their obligations.

The 2001 IFA report for the SRF included 26 recommendations directed at the Company and OMNR. The Action Plan developed in response to the audit was approved on December 9, 2002. The audit team found compliance with the required procedures after the tabling of that audit report. The Action Plan was endorsed by the Regional Director and approved by both OMNR's Assistant Deputy Minister, Forests Division and OMNR's Assistant Deputy Minister, Field Services Division.

According to the Status Report, the Company and OMNR have acted upon the recommendations and Action Plan items from the 2001 audit. Two recommendations are repeated in this audit. The audit team has recommended that the Minister of Natural Resources extend the SFL for an additional five years, as was the case for the last audit. The audit team also recommends again that maintenance on the Graham road be improved. The audit team notes the status report was completed one month late.

It is clear that the Company and OMNR addressed most of the audit recommendations in an effective manner. For example, the collection of biological and cultural values has improved on the Forest. There is a more comprehensive approach to incorporating deferred areas into the determination of available harvest areas, thereby ensuring that FMP decisions do not become defacto land use planning decisions. The Company has done a good job in training its operators, as the previous audit recommended. This has largely been accomplished within the scope of the Company's ISO and CSA certification programs. The last audit recommended that the area forester spend more time on the land base and that has clearly happened.

There were no operations on Category 2 lands on this forest during the audit period. Category 2 lands are those harvested prior to April 1, 1994 that have been designated as natural regenerating, or areas that need to be regenerated after that time.

Examination of the Forest Renewal Trust Fund account, and the record keeping required to support it, found full compliance with the license requirements. The sample of silvicultural expenditures tested was found to be accurate for eligible activities. Interim and final invoices were filed appropriately and were authorized by a registered professional forester. Minimum balances (\$2,800,100.00) were maintained in the Forest Renewal Trust Fund account on March 31 of each year, as required.

The Trust Fund balance has declined from a high of \$5.62 million in 2003 to a level of \$2.95 million in 2006. The minimum balance is the amount of funds sufficient to perform renewal on the unit. Buchanan Forest Products Ltd., with permission from OMNR, deferred payment to the trust fund account during the 2005/2006 fiscal year without notice to the SFL holder. This is a matter of significant concern for the audit team. If continued, by the end of 2007, the trust will have insufficient funds to complete the renewal program. If renewal cannot be completed, one of the founding principles of sustainable forest management will be compromised. Simply stated, the forest industry will not be renewing the forest it has harvested.

According to verbal information provided by Buchanan Forest Products Ltd., it has committed to pay these funds back with interest upon receipt of monies owing to that company from the softwood lumber dispute. OMNR has confirmed that a repayment schedule has been agreed to and that the deferred funds will be repaid starting in December of 2006, with the final repayments to the Forest Renewal Trust Fund scheduled for December of 2007. Deferred stumpage payments are scheduled to be repaid by March 2008.

While the auditors appreciate the practicality of deferring obligations to pay trust fund fees during a time of financial hardship, the manner in which this was implemented raises issues. The first issue is that neither the SFL holder nor the OMNR District office was informed of the deferred payment plan. The Company is directed in the SRF SFL to pay the renewal charges to the trust fund and, as such, are liable for the renewal fees on the Forest. Yet they were not informed of the payment deferral agreement for some months after payments had stopped. They were subsequently provided with a letter from OMNR allowing them to reduce the silvicultural trust fund balance by the amount owing by Buchanan Forest Products Ltd. They have yet to be informed of the repayment schedule.

The process was less open and transparent than it should have been. At a minimum, the SFL holder and District office need to be informed, in advance, when funding commitments for forest renewal has been altered.

**Recommendation 9: The Crown is to make changes for overlapping licensees payment to the forest renewal trust only with prior notification to the SFL holder and the OMNR District office.**

There is another issue that is raised. The forest renewal trust is the funding measure that ensures the forest can be regenerated successfully and effective forest regeneration is a high priority requirement for companies operating on Ontario's Crown forests.

Diligence is required by SFL holders to ensure silviculture is completed in a timely and effective manner, and the Crown has several provisions, including demanding trust fund minimum balances, special audits of trust fund expenditures, AWSs, compliance inspections, annual reports and IFAs, for ensuring this basic work is completed. The audit team notes that the precedent set here could lead to the trust fund falling far below the required minimum and compromise the ability of the SFL holder to meet the obligations to manage the forest sustainably. In the future, if OMNR chooses to unilaterally grant a deferral of the obligation to pay trust fund charges, that deferral should be for a period not longer than six months, after which the Crown assumes responsibility for the deferred revenues and replenishes the trust fund account with interest.

**Recommendation 10: OMNR is to assume responsibility for any deferred trust fund contributions after a period of not more than six months, after which the Crown assumes responsibility for the deferred revenues and replenishes the trust fund account with interest.**

Abitibi has satisfied its planning obligations under the terms of its license and the Company's performance in terms of monitoring and reporting has been very strong. The Company is conducting compliance inspections as proposed in the compliance plans and Annual Reports are submitted by the required deadlines.

The SRF supplies the Abitibi-Consolidated Fort William Division mill with the highest quality fibre mix possible. The mill uses approximately 350,000 m<sup>3</sup>/yr of pulpwood and chips, primarily spruce. In addition, there are a number of wood supply commitments that have been placed on the Forest, as outlined in Appendix 'E' of the SFL. These are:

- Cascades Fine Paper Group Thunder Bay Inc. mill with directive volume up to 120,000 m<sup>3</sup>/yr of poplar pulpwood. (Now closed)
- Weyerhaeuser Company Ltd. veneer plant in Nipigon with directive veneer quality volumes of 16,000 m<sup>3</sup>/yr of poplar and 1,600 m<sup>3</sup>/yr of white birch. (Levesque Plywood Ltd now owns this mill)
- Buchanan Northern Hardwood Inc. mill volume of 40,700 m<sup>3</sup> of white birch and 40,000 m<sup>3</sup> of poplar tree length.
- Northern Sawmills Inc. with directed volumes up to 227,000 m<sup>3</sup>/yr of spruce, pine and balsam round wood fibre.

The Company has current Memorandums of Agreement (MOAs) with Buchanan Northern Hardwood Inc, Northern Sawmills Inc. and Cascades Paper. There is a signed MOA with Levesque Plywood Ltd., but it is expired and in the process of being renegotiated. The auditors interviewed representatives from all parties. All of the representatives have indicated they are satisfied with the wood flow coming from the SRF. Northern Sawmills received 232,137 m<sup>3</sup> during the audit period. None of the other parties received the volumes specified, and all rationalize the shortfalls as a function of markets and availability.

An assessment of the Company's performance in meeting its obligations related to compliance monitoring is discussed under Section 3.6 of this report. The Company has met its obligations in this regard.

The Company's performance in meeting its obligations related to observing the provisions of the SGRs is generally covered under Sections 3.3.7, 3.4.3, and 3.4.4 of this report. The audit team's findings confirm that Abitibi has met its license obligations with respect to this matter.

The Company's performance in meeting its obligations related to preparing the required FMPs, AWSs, and associated reports is covered elsewhere throughout this report. The Company has met its obligations on this matter in all respects.

The Company's performance in meeting its obligations related to the assessment of harvested areas is generally discussed under Section 3.4.2 of this report. Abitibi has met its license obligations in this regard.

There was no evidence that forest operations impacted mining leases or claims. The Company had significant discussions regarding the replacement of a bridge by a mining company, which resulted in a non-compliant bridge being raised.

Niigaani Enterprises Inc. has been a successful harvesting and silvicultural presence on the Forest. As noted in Section 3.2.3 of this report, there is disappointment within several First Nations with the slow progress at creating economic opportunities in the forest sector. It is also noted in Section 3.2.3 of this report that, due to the distance of the SRF from most First Nations, the SRF has not been noted as a forest of particular interest to First Nations.

Other contractual obligations related to maintaining records of eligible silviculture work reimbursed by the Forest Renewal Trust Fund appear to have been met by the Company. The Draft *Specified Procedures Report* reviewed all charges to the Forest Renewal Trust Fund recorded by Abitibi for the period between April 1, 2003 and March 31, 2004. The draft reports, received by the audit team after the field audit had been completed, identify a series of charges that were not consistent with the terms of the trust fund agreement.

The audit team did not receive a final copy of the *Specified Procedures Report* and is unable to verify the findings. However, as a matter of course, the auditors did view field sites where silviculture activities were completed within the 2004-2005 period identified in the Draft *Specified Procedures Report*. These site inspections routinely included a review of the silvicultural prescription for the site, a field inspection of the silvicultural activities that had taken place (i.e., site preparation, planting, seeding, or tending) and an assessment of the effectiveness of the treatment. Sites were also tracked through the FMP, AWSs, and Annual Reports. Without exception, field sites showed that activities were consistent with trust fund expectations. There is always difficulty in tracing specific treatments back to financial invoices. Many activities, such as aerial spraying or site preparation, are not identified on invoices by specific treatment blocks, but rather by groups of treatments based on area or calendar-based units.

The audit team is unable to comment on the financial procedures employed by Abitibi management to ensure that charges to the Forest Renewal Trust Fund accurately reflect silvicultural activities that have taken place on the ground, until the final *Specified Procedures Report* is issued. The auditors are confident that the silvicultural activities inspected that occurred during the 2004-2005 period were technically sound.

The Company has met its contractual obligations in a highly effective manner. The only issue identified by the audit team was deferred trust fund contributions by a third party, an event that the Company had no knowledge of or, as it turns out, influence over. The audit team found the Company's operating relationships with the OMNR, LCC, overlapping licensees, tourist operators and other stakeholders were positive and progressive.

#### 4.0 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

The audit confirms that this is a well-managed forest. Technical aspects of forest management are completed in a highly satisfactory manner. Communication between the various stakeholders on the Forest is excellent and relations are professional, positive and progressive. The SFL holder is satisfactorily meeting the terms and conditions of the SFL. OMNR is also meeting its overall responsibilities associated with its role in managing this forest. The audit team confirms that, based on the evidence reviewed, management of the Forest was in compliance with the legislation, policy, and regulations that were in effect during 2001-2006 audit term. The SRF is being managed sustainably. Given the effective performance in managing all aspects of the SFL, the audit team has recommended that the term of Sustainable Forest License #542526 be extended for an additional five years.

**Recommendation 11: The auditors recommend that the Minister of Natural Resources extend the Sustainable Forest License for the Spruce River Forest for an additional five-year period.**

This audit report identifies 11 recommendations and 8 suggestions aimed at improving the management and administration of the SRF. Table 4 summarizes the recommendations and suggestions by each broad audit principle.

**Table 4. Recommendations and suggestions arising from the audit.**

<b>Principle 1: Commitment</b>
No recommendations or suggestions.
<b>Principle 2: Public Participation</b>
<b>Recommendation:</b>
1) Corporate OMNR shall revise Condition # 34 Guidelines to ensure that all re-allocations



of timber have regard for First Nations economic opportunities.

**Suggestions:**

- 1) In the Native Background Information Report, the Fort William First Nation should be identified as a First Nation of interest.
- 2) Abitibi and OMNR should track the progress of the Lac Des Mille Lacs First Nation values process to ensure that values are not threatened by operations in the current plan.
- 3) OMNR and Abitibi should explore discussions with Whitesand First Nation regarding silvicultural opportunities on the Spruce River Forest.

**Principle 3: Forest Management Planning**

**Recommendations:**

- 2) OMNR shall ensure that a Habitat Suitability Analysis for moose, and other species as they deem appropriate, is completed to ensure forest management plan objectives are reached.
- 3) OMNR shall update the Natural Resources Values Information System (NRVIS) to confirm the status and location of cold water lakes and streams and potential trout habitat prior to the start of scheduled operations.

**Principle 4: Plan Implementation**

**Recommendations:**

- 4) Abitibi shall review training of operators and supervisory staff regarding the implementation of the individual stems requirement of the forest management plan, and its origin in the Forest Management Guide for Natural Disturbance Pattern Emulation (NDPEG).
- 5) The Company and OMNR shall ensure that pulp loads are properly secured, particularly on the Graham Road, to ensure that no pulp sticks fall off trucks in transit, and that no pulp sticks are left on the road surface.

**Suggestion:**

- 4) Abitibi should assess the aerial tending treatment blocks where treatment effectiveness has been unsatisfactory to determine the cause for the results and take appropriate action to correct this matter.

**Principle 5: Systems Support**

**Suggestions:**

- 5) Abitibi should dedicate more human resources to managing the Spruce River Forest in order to comply with information requests in a timely manner.
- 6) The Company should examine their facilities for archiving old records and plans to ensure there is no deterioration.

**Principle 6: Monitoring**

**Recommendations:**

- 6) Abitibi shall ensure that all compliance reports are submitted within the timeframes outlined in the Forest Information Manual.



- 7) Abitibi shall ensure the Annual Reports contain more descriptive text explaining reasons for deviations for all aspects of forest operations, compliance, and analysis on progress towards achieving forest management plan and annual work schedule targets.
- 8) The Company shall ensure that future Annual Reports prepared for the Spruce River Forest comply with Part E, Section 4.4 of the 2004 Forest Management Planning Manual, which describes the requirements related to Independent Forest Audit Action Plans.

**Suggestions:**

- 7) The Company should ensure that progress with regard to any exceptions monitoring program being conducted on the Spruce River Forest be reported annually in the Annual Reports, as required by the Forest Management Planning Manual.
- 8) Abitibi should provide more substantive analysis when preparing documents that evaluate performance or achievements. Conclusions and recommendations should be included in the text of such documents.

**Principle 7: Achievement of Management Objectives and Forest Sustainability**

No recommendations or suggestions.

**Principle 8: Contractual Obligations**

**Recommendations:**

- 9) The Crown is to make changes for overlapping licensees payment to the forest renewal trust only with prior notification to the SFL holder and the OMNR District office.
- 10) OMNR is to assume responsibility for any deferred trust fund contributions after a period of not more than six months, after which the Crown assumes responsibility for the deferred revenues and replenishes the trust fund account with interest.

**Conclusions**

**Recommendation:**

- 11) The auditors recommend that the Minister of Natural Resources extend the Sustainable Forest License for the Spruce River Forest for an additional five-year period.

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## **APPENDIX A – COMPARISON AND TREND ANALYSIS OF PLANNED VS. ACTUAL OPERATIONS**

Note: Information in this report is appended as submitted by Abitibi Consolidated Company of Canada.

**Comparison and Trend Analysis Report  
of Planned Versus Actual Forest Operations**

**for the  
Spruce River Forest  
as required by the Independent Forest Audit Protocol 2006**

**Prepared by:**

**Paul Poschmann, R.P.F.**



**Signature:**

A handwritten signature in black ink, appearing to be "P. Poschmann", written over a horizontal line.

**Date:** Dec 6, 06

## **Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report for the Spruce River Forest**

### **Introduction**

The preparation of a comparison and trend analysis report is a requirement of the Independent Forest Audit Protocol, 2006 for the conduct of the Spruce River Forest audit covering the five-year period 2001-2006. According to the protocol, the report is to cover the forest management plan that was in place on March 31<sup>st</sup> of 2006 and the two previous forest management planning periods. Thus the report covers the plan periods 1991 – 1996, 1996-2001 and 2001-2006. For Tables 1 and 5, information from the 2006-2011 plan period is included for supplemental information as the new plan utilizes a new forest resource inventory.

The information compiled in this report is sourced from the applicable forest management plans and annual reports for the last 3 plan periods and from the trend analysis prepared for the 2001 Independent Forest Audit.

### **History**

The Spruce River Forest, Sustainable Forest License 542526, is located in the Northwest Region of the Ontario Ministry of Natural Resources (OMNR), Thunder Bay District with a small portion falling into the Dryden District. The Thunder Bay District administers the Forest.

The Abitibi corporate offices are located in Montreal, with local woods and mill offices at the Fort William Division mill in Thunder Bay and at the woods garage facility at the intersection of Hwy 11/17 and Hwy 527.

The Spruce River Forest is located north of the city of Thunder Bay. It stretches eastward north of Dorion, west through Graham to Sowden Lake northeast of Ignace, and north to the Obonga/Uneven Lake area. Primary access corridors are Hwy 527 and 811 and the Graham and Dorion Roads.

The Spruce River Forest was originally part of Crown Timber Licence 328000. Order-In-Council 106/82 separated it from three other parcels of land on January 1, 1982. Licences 328000-1 and 328000-2 were amalgamated into the Abitibi Sioux Lookout Management Unit, and Licence 328000-3 became the Auden Management Unit. The Licence numbers were changed to 540185-1, 2 and 3 respectively in 1988. The Auden Management Unit has since been transferred to Domtar Inc. and the Abitibi Sioux Lookout MU split between Bowater's English River MU and Buchanan Forest Products' Lac Seul MU. These transfers were the direct result of the Wabakimi Park expansion in 1992.



The Company and the MNR formally signed Forest Management Agreement (FMA) 500700 on December 15, 1981. The 2001-2021 FMP marked the fifth five-year plan since the beginning of the FMA process in 1981. In 1994 the Company and MNR signed a "new business agreement" (Carman). This change to the FMA agreement provided the establishment of a dedicated trust fund for silvicultural activities. On February 7, 1995 the boundary was extended to add the former Reba Licence 192200 to the Forest. With the passage of the CSFA in 1995, the Spruce River FMA became a deemed SFL. On April 14, 1999 Sustainable Forest Licence # 542526 was issued to encompass the management of the Forest. The most recent amendment was issued May 5, 2006.

The Forest has a long history of timber extraction. The Fort William and former Abitibi-Price Inc. mills, (Thunder Bay and Provincial Papers), were built in the early 1920's. At that time water was the only method of transportation to mill sites. Water driveable rivers and streams dictated the location of logging areas. From the 1930's to early 1950's, winter logging operations in the Forest were concentrated in the Wolf River and Chief Bay areas.

In 1964, the Company, in conjunction with the federal and provincial governments' Roads to Resources program, completed construction of the Spruce River Road. This led to year round logging operations with a truck haul to the Thunder Bay mills. Also several camps were constructed between Mile 28, the licence boundary, and Mile 72. These live-in camps have since been closed. The provincial government assumed responsibility for the Spruce River Road in 1967, and it is now Secondary Highway #527. In 1974 the provincial government and the Company co-operated in the construction of the Garden Lake Road, or Highway #811. Along with the Graham Road, which accesses the western portion of the Forest, these high quality roads have enabled the Company to distribute its harvesting operations over most of the Forest.

The Spruce River Forest fibre supply is focused on supplying the Abitibi-Consolidated Fort William Division mill with the highest quality fibre mix possible. The mill uses approximately 350,000 m<sup>3</sup>/yr of pulpwood and chips, primarily spruce. The Ministry recognized operating level is 320,000 m<sup>3</sup>/yr and indicates that 250,000 m<sup>3</sup>/yr are sourced from the Forest with the remainder from private sources. In addition, there are a number of directed volume agreements that have been placed on the Forest, as outlined in Schedule 'E' of the Sustainable Forest Licence. These are:

- Cascades Fine Paper Group Thunder Bay Inc. mill with directive volume up to 120,000 m<sup>3</sup>/yr. of poplar pulpwood. (Now closed)
- Weyerhaeuser Company Ltd. veneer plant in Nipigon with directive volumes of 16,640 m<sup>3</sup>/yr. of poplar and 1,600 m<sup>3</sup>/yr. of white birch. Levesque Plywood Ltd now owns this mill.
- Buchanan Northern Hardwood Inc. mill volume of 40,700 m<sup>3</sup> of white birch and 40,000 m<sup>3</sup> of poplar tree length
- Northern Sawmills Inc. with directed volumes up to 227,000 m<sup>3</sup>/yr. of spruce, pine and balsam round wood fibre.

These commitments will be met through Company operations and/or through the issuance of Over-lapping Forest Resource Licences. These licenses involve several operators and cover various species directed to appropriate mills.

The Company has two major operations, a Thunder Bay based commuter camp, harvesting along the Highway 527 corridor and adjacent areas, and a live-in camp for the Highway 811 area. The live-in camp is portable, was opened in 1997 with a capacity of 40 people, and is currently located at km 6 of the Mooseland Road, approximately 33 km north on Hwy 811. Levesque contractor operations are commuter based out of Thunder Bay and Dorion. The Buchanan Forest Products operations are based in portable trailers usually located adjacent to the harvesting areas. Niigaani Enterprises operates in the Obonga Lake area.

The Spruce River Forest has received FMA reviews in 1986 and 1991 and independent forest audits in 1996 and 2001.

### **Summary of Total Area Under Management**

Significant changes to the managed Spruce River Forest land base have occurred during the period of this trend analysis report as shown on Table 1. As noted above, in 1995 the former Reba license was added to the Forest however, the land base area reported for 1991-1996 includes the revised area. The reduction in land base between 1996-2001 and 2001-2006 is attributed to over 47,000 ha removed for parks and conservation reserves resulting from Ontario's Living Legacy. Of interest is the reduction of B&S/NSR from 193,316 ha in 1991 to 21,621 ha in 2001. Much of this is due to the large area of 1980 fire (approximately 100,000 ha) that was regeneration surveyed in 1992 and moved into the jack pine and poplar working groups. Aggressive regeneration surveys between 1997 and 1999 moved significant areas of regenerated cutover into forest stands, primarily spruce and poplar.

For comparison's sake, we have provided the landbase figures for the 2006-2011 plan term. This plan utilized a new inventory and the return for the production forest landbase of a number of former exclusions (e.g. MTO gravel areas). There was also a significant transition of balsam fir to white birch as the spruce budworm took its toll.

### **Description of Forest Units**

The forest units used for the compilation of the 1991 and 1996 forest management plans were reflective of the forest regulation model (MADCALC) and the state of forest unit development at the time (Table 2). Essentially, the forest units reflected the major working groups. The only exception was the breakout of the spruce into upland and

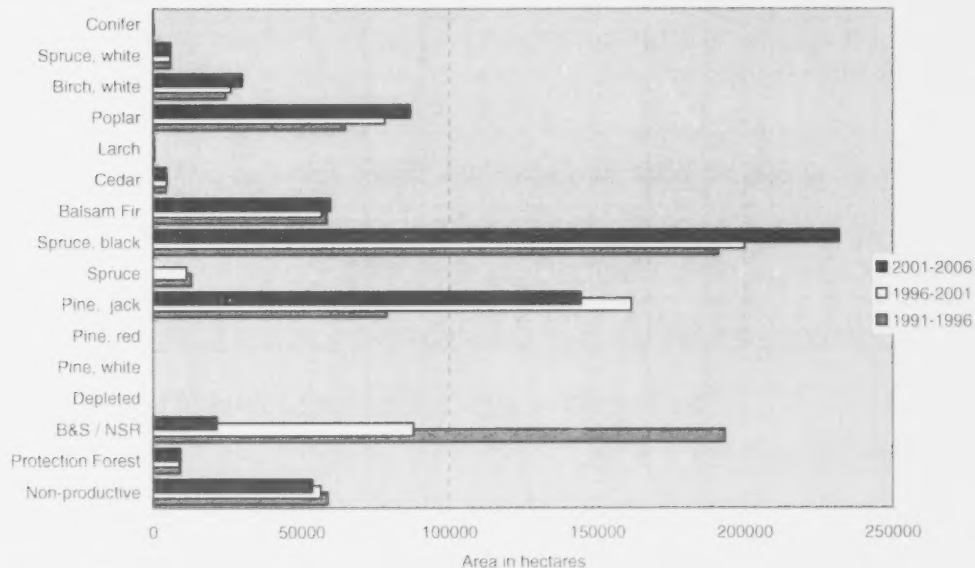
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Table 1 - Summary of Total Area Under Management

Past and Current Plans - Crown Managed

MU: Spruce River Forest

Land Type	Plan Term	Area in hectares			
		Past Plans		Current	2006 -2011
		1991-1996	1996-2001	2001-2006	
Non-Forested					
Other Land		1,832	3,010	1,788	6,919
Forested					
Non-productive		58,993	56,570	53,761	60,009
Productive					
Protection		9,223	8,829	9,282	9,969
Production Forest					
B&S / NSR		193,316	87,931	21,621	16,947
Depleted		-	-	-	14,958
Forest Stands by Working Group					
Pw		98	68	44	31
Pr		-	-	-	409
Pj		78,927	161,607	144,627	139,695
S		12,940	11,309	-	-
Sb		191,089	199,925	231,923	262,855
Bf		58,742	57,027	59,932	7,742
Ce		4,467	4,689	4,529	10,769
L		473	446	437	1,236
Po		65,011	78,279	86,923	101,116
Bw		24,607	26,290	30,083	58,845
Sw		5,899	5,843	5,968	5,302
Oc		305	-	185	15
Total Production Forest		635,874	633,414	586,272	619,920
Total Forested Land		704,090	698,813	649,315	689,898



Source: FMPM Table FMP-1, FMP-2  
TMPM Table 4.8.2

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**Table 2 - DESCRIPTION OF FOREST UNITS (FMP-8 )**

### MU: Spruce River Forest

#### Plan Period: 1991 - 1996

Forest Unit		Forest Type	Working Groups	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
Sp 1	Spruce 1	Conifer	Sb, Sw, S	X, 1	Clearcut	WG = Sb, Sw	Oc with Sb>20%, Sb>11 m
Sp2	Spruce 2	Conifer	Sb, Ce, L, Oc	2, 3	Clearcut	WG = Sb, Oc	
B12	Balsam Fir 2	Conifer	Bf	All	Clearcut	WG = Fb	
Pj2	Jackpine 2	Conifer	Pj	All	Clearcut	WG = Pj	
Po2	Poplar 2	Hardwood	Po	All	Clearcut	WG = Po	
Bw2	White birch 2	Hardwood	Bw	All	Clearcut	WG = Bw	

#### Plan Period: 1996 - 2001

Forest Unit		Forest Type	Working Groups	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
Sp 1	Spruce 1	Conifer	Sb, Sw, S	X, 1	Clearcut	WG = Sb, Sw	Oc with Sb>20%, Sb>11 m
Sp2	Spruce 2	Conifer	Sb, Ce, L, Oc	2, 3	Clearcut	WG = Sb, Oc	
B12	Balsam Fir 2	Conifer	Bf	All	Clearcut	WG = Fb	
Pj2	Jackpine 2	Conifer	Pj	All	Clearcut	WG = Pj	
Po2	Poplar 2	Hardwood	Po	All	Clearcut	WG = Po	
Bw2	White birch 2	Hardwood	Bw	All	Clearcut	WG = Bw	

#### Plan Period: 2001 - 2006

Forest Unit		Forest Type	Working Groups	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
PwAll	White Pine	Conifer	Pw	All	Clearcut	Pw >= 40	2,3,4 or La+Ce >=50 or WG = La or Ce and Fb<=40 and Po+Bw <= 20 and Po+Bw <= 20 and Fb >= 60 or Sb+Pj >= 70 and Po+Bw <= 20
PrAll	Red Pine	Conifer	Pr	All	Clearcut	Pr >= 40	
SbLow	Spruce Lowland	Conifer	Sb, Ce, L, Oc	2, 3, 4	Clearcut	Sb+La+Ce =10 and Site =	
SpUpI	Spruce Upland	Conifer	Sb, Sw	0, 1, 2	Clearcut	Sb+Sw >=50 and Pj <50	
PjAll	Jack Pine	Conifer	Pj	All	Clearcut	Pj >=50 and Fb <=30	
Bfir	Balsam Fir	Conifer	Bf	All	Clearcut	Fb >=40 and Sb+Sw+Pj+	
CoMix	Conifer Mix	Conifer	Sb, Sw, Pj, Fb, Ce, L	All	Clearcut	Sb+Sw+Pj+Fb+Ce+La >= 50	
PoAll	Poplar	Hardwood	Po	All	Clearcut	Po >= 70	
BwPur	Birch	Hardwood	Bw	All	Clearcut	Bw >= 60	
HwdMx	Hardwood Mix	Hardwood	Po, Bw	All	Clearcut	Po + Bw >= 50	

lowland components. Due to observed problems with the FRI, lowland spruce stands that were less than 11 m in height at age 80 were moved into a non-productive category.

With the preparation of the 2001 forest management plan, computer powers were allowing more sophisticated models and the wood supply model had changed to SFMM. There was also a move towards more ecologically based forest units. There are significant differences between the forest units used in the previous two plans and those in the 2001 plan with the introduction of mixed conifer and hardwood forest units and a resultant tendency for the single species forest units to be more pure. There was also the introduction of white and red pine forest units. Although there are only 3 white pine stands in the Forest, the forest units and associated ground rules were developed to allow for the potential to create future red or white pine stands.

### **Summary of Planned and Actual Harvest Volumes**

During the 2001-2006 term 85% of the planned conifer and 68% of the planned hardwood volume was realized (Table 3). Overall volume utilization was 83% of planned. This level of utilization is extremely good and reflects a much improved market for birch. Utilization levels for 1996-2001 and 1991-1996 were 79% and 56% respectively of planned indicating continual improvement.

### **Summary of Planned and Actual Harvest Depletion Area**

The trends in planned versus actual harvest depletion area are similar to the trends noted for volumes (Table 4) with an overall harvest achievement of 87% of planned for 2001-2006. This is an increase from 81% in 1996-2001 and 61% in 1991-2001. Salvage harvest of natural depletions, although not recorded in the table, amounted to 600 ha in the 1996-2001 term and 150 ha in the 2001-2006 term.

Of interest are the trends in natural depletions over the three plan terms. Between 1991 and 1996, annual natural depletions totalled 404 ha and consisted of a fire in 1995. In the 1996-2001 term, 1996 was a significant fire year and accounted for most of the natural depletions and the annual natural depletions climbed to 1,951 ha. In the 2001-2006 term, annual natural depletions dropped down to 600 ha.

### **Summary of Managed Productive Forest by Forest Unit**

Due to major changes in landbase between plan terms and changes in forest unit definition, an analysis of changes in forest unit and age class representation (Table 5) will provide little insight on how the forest is being managed. As noted in the discussion of Table 1, the dominant changes in forest units resulted from movement out of B&S into forest stands in the first age class.

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Table 3 - Summary of Planned &amp; Actual Harvest Volumes

MU: Spruce River Forest

### Average Planned Annual Harvest Volumes

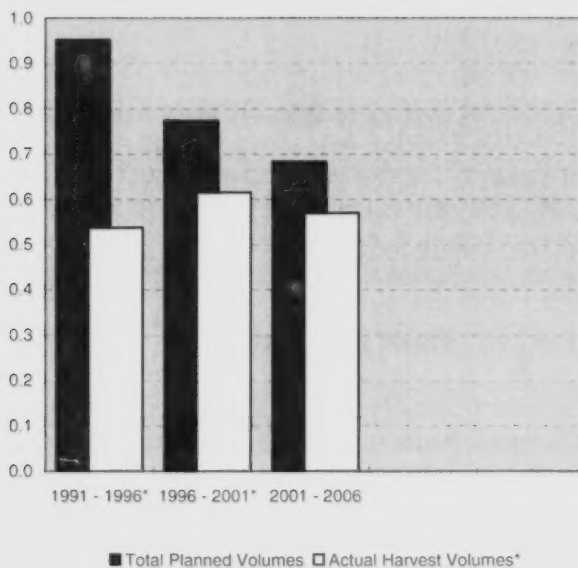
Volumes are Annualized for the indicated 5 year period

Species	Volume in '000's cubic metres		
	Past Plans		Current
	1991 - 1996	1996 - 2001	2001 - 2006
Spruce	500	331	336.8
Balsam Fir	146	81	35.6
Jack Pine	185	193	120.2
Poplar	120	132	138.6
Birch	1	38	50.3
Cedar/Larch	-	-	0.6
Total Planned Volumes	952.0	773.2	682.1

### Actual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

Species	Volume in '000's cubic metres		
	Past Plans		Current
	1991 - 1996	1996 - 2001	2001 - 2006
Spruce	265.0	262.4	268.3
Balsam Fir	70.1	16.6	11.0
Jack Pine	147.7	219.1	142.0
Poplar	53.2	113.3	122.1
Birch	0.3	3.2	21.6
Cedar/Larch	-	-	4.2
Total Actual Volumes	536.3	614.6	569.3



Source: planned: TPM Table 4.18.1, FPM Table FMP-21  
actual TPM Table 4.3.1, 1996 FPM RPFO-4 and annual reports, 2004 FPM AR-4



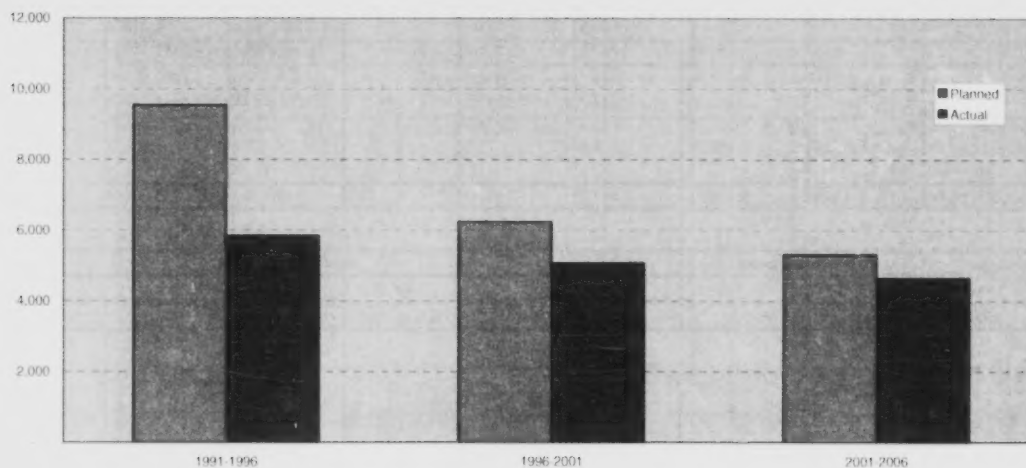
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**Table 4 - Summary of Planned & Actual Depletion Area**  
Past and Current Plans

**Spruce River Forest**

Area is Annualized for the indicated 5 year period

Planned Annual Harvest Area				Actual Depletion Area					
Area in hectares				Area in hectares					
Past Plans		Current		Past Plans				Current	
Plan Term	1991 - 1996	1996 - 2001	2001 - 2006	1991 - 1996	1991 - 1996	1996 - 2001	1996 - 2001	2001 - 2006	2001 - 2006
Forest Unit				Harvest	Natural	Harvest	Natural	Harvest	Natural
SbLow	977	731	548	458	15	579	809	365	124
SpUpl	2,292	1,641	1,844	1,759	226	1,387	689	1,653	273
PjAll	1,863	1,701	479	1,430	106	1,533	169	449	11
CoMix			776					753	134
Bfir	2,455	679	261	1,205	33	464	155	218	32
PoAll	1,647	1,131	336	882	20	904	84	311	8
BwPur	292	346	317	99	4	195	45	211	5
HwdMx			740					673	14
Pw	11			5					
Total Area:	9,537	6,229	5,301	5,838	404	5,062	1,951	4,633	600

**Planned vs. Actual Harvest Area****Source:**

planned: TPM Table 4.15, FMPM Table FMP-18

actual: TPM Table 4.1, 1996 FMPM Table RPFO-2 and annual reports: 2004 FMPM AR-1 and AR-6

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Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9) / WORKING GROUP (TPMP 4.8.1, 4.9)

## Spruce River Forest

FMP-9 2001 - 2006

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Bfir	1-20			1,842.7	0.0		12,213.5	0.0	10,370.8	0.0
	21-40			54.5	597.8		2,421.9	31,985.1	2,367.4	31,387.3
	41-60	38.6	2,329.3	2,054.2	123,568.7		19,605.9	1,097,793.5	17,551.7	974,224.8
	61-80	104.6	9,523.9	2,386.4	200,982.5		18,499.6	1,541,213.8	16,113.2	1,340,231.3
	81-100			271.7	26,498.7		2,216.7	210,987.9	1,945.0	184,489.2
	101-120			6.3	520.6		205.3	17,716.7	199.0	17,196.1
	120+			70.9	4,178.6		77.6	4,777.2	6.6	598.6
Forest Unit Subtotal		143.2	11,853.2	6,686.8	356,346.9	0.0	55,240.6	2,904,474.2	48,553.8	2,548,127.3

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
BwPur	1-20			476.9	204.8		2,556.0	2,755.4	2,079.1	2,550.6
	21-40			66.8	919.1		344.4	6,412.2	277.5	5,493.1
	41-60	63.2	0.0	143.8	12,025.6		1,531.4	112,110.8	1,387.6	100,085.2
	61-80	65.2	6,264.6	957.7	119,011.4		4,396.1	505,093.4	3,438.4	386,082.0
	81-100			272.3	32,443.8		1,620.6	171,525.3	1,348.3	139,081.5
	101-120			122.2	8,918.7		451.1	26,853.2	328.9	17,934.5
	120+	4.6	168.2	3.6	71.9		59.6	886.0	56.0	814.1
Forest Unit Subtotal		133.0	6,432.8	2,043.3	173,595.3	0.0	10,959.2	825,636.3	8,915.9	652,041.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
CoMix	1-20			2,703.5	643.5		36,416.5	34,671.5	33,713.0	34,028.0
	21-40			565.8	8,788.7		38,235.3	686,622.9	37,669.6	677,834.2
	41-60	81.5	6,747.1	401.2	34,257.3		4,968.0	384,078.1	4,566.8	349,820.8
	61-80	42.1	3,926.9	2,157.7	235,891.2		17,051.7	1,950,667.6	14,894.0	1,714,776.4
	81-100	249.3	45,479.0	2,864.4	370,658.4		16,509.4	2,052,213.7	13,645.0	1,681,555.3
	101-120	3.7	1,077.5	961.1	122,162.1		5,697.9	704,323.0	4,736.8	582,160.9
	120+			149.7	14,052.3		1,168.2	114,378.9	1,018.5	100,326.6
Forest Unit Subtotal		376.6	57,230.5	9,803.4	786,453.5	0.0	120,047.0	5,926,955.7	110,243.6	5,140,502.2

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
HwdMx	1-20	2.8	0.0	1,920.0	918.3		18,777.7	30,991.4	16,857.6	30,073.1
	21-40	71.3	862.2	320.1	8,397.7		6,226.7	139,604.3	5,906.6	131,206.6
	41-60	27.2	2,646.9	158.6	16,319.6		1,665.0	133,922.8	1,506.4	117,603.2
	61-80	33.4	2,526.0	1,828.4	249,320.4		12,588.8	1,654,454.3	10,760.4	1,405,133.9
	81-100	63.3	7,162.0	2,605.5	344,486.1		11,108.4	1,421,553.7	8,502.9	1,077,067.6
	101-120			463.3	50,779.5		2,940.7	310,221.6	2,477.3	259,442.1
	120+			34.3	1,353.1		347.1	15,923.5	312.8	14,570.4
Forest Unit Subtotal		198.0	13,197.1	7,330.3	671,574.7	0.0	53,654.4	3,706,671.6	46,324.1	3,035,096.9

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
PjAll	1-20			3,054.7	0.0		26,972.6	0.0	23,917.9	0.0
	21-40			671.0	7,941.7		43,155.2	497,479.4	42,484.3	489,537.7
	41-60			178.4	9,638.3		2,060.0	144,030.0	1,881.6	134,391.7
	61-80	7.0	1,446.2	2,208.5	311,257.2		17,601.9	2,630,958.4	15,393.4	2,319,701.2
	81-100	56.8	7,532.6	2,640.2	501,281.2		12,634.3	2,295,308.8	9,994.1	1,794,027.6
	101-120	9.2	1,454.1	283.8	50,625.4		1,626.7	275,743.3	1,343.0	225,117.9
	120+	18.4	141.7	171.4	25,200.1		670.6	105,612.7	499.2	80,412.6
Forest Unit Subtotal		91.5	10,574.6	9,207.9	905,943.9	0.0	104,721.3	5,949,132.6	95,513.4	5,043,188.7

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
PoAll	1-20			1,710.5	756.8		14,531.3	26,072.2	12,820.8	25,315.4
	21-40			27.9	1,181.4		1,799.8	69,705.3	1,771.9	68,523.9
	41-60			5.6	809.8		324.7	40,263.1	319.2	39,453.3
	61-80	20.4	3,062.1	699.5	120,224.5		4,128.5	710,987.9	3,429.0	590,763.4
	81-100	38.5	6,781.4	1,457.7	280,098.3		7,270.5	1,351,562.6	5,812.8	1,071,464.3
	101-120			300.1	54,954.1		2,013.9	379,934.7	1,713.9	324,980.6
	121+			6.8	43.2		71.5	3,796.7	64.7	3,753.5
Forest Unit Subtotal		58.9	9,843.5	4,208.0	458,068.1	0.0	30,140.3	2,582,322.5	25,932.3	2,124,254.4

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
PwAll	1-20			0.1	0.0		39.7	0.0	39.6	0.0
	21-40						0.0	0.0		
	41-60						0.0	0.0		
	61-80						0.0	0.0		
	81-100						0.0	0.0		
	101-120						0.0	0.0		
	121+						4.5	739.1	4.5	739.1
Forest Unit Subtotal		0.0	0.0	0.1	0.0	0.0	44.3	739.1	44.1	739.1

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Sblow	1-20	75.8	0.0	1,718.6	0.0		22,661.4	0.0	20,942.8	0.0
	21-40	10.0	0.0	73.9	67.2		4,120.6	1,576.6	4,046.6	1,509.4
	41-60			176.5	1,845.8		2,128.7	22,517.6	1,952.2	20,671.8
	61-80	491.9	17,753.3	549.4	21,612.8		3,990.5	164,980.7	3,441.1	143,367.9
	81-100	1,766.9	174,435.0	890.8	73,119.5		7,212.8	554,557.8	6,322.0	481,438.3
	101-120	1,717.3	153,318.7	1,024.5	95,449.9		9,786.0	898,199.4	8,761.5	802,749.5
	120+	3,013.8	280,194.3	2,171.2	219,970.5		14,102.8	1,410,939.2	11,931.6	1,190,968.7
Forest Unit Subtotal		7,075.7	625,701.3	6,604.8	412,065.7	0.0	64,002.7	3,052,771.3	57,398.0	2,640,705.6

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
SbUpl	1-20			4,520.2	0.0		39,748.2	0.0	35,228.0	0.0
	21-40			567.6	5,452.3		13,248.7	89,278.4	12,681.2	83,826.1
	41-60			277.7	15,387.9		5,004.6	242,240.6	4,726.9	226,852.7
	61-80	17.0	768.8	2,233.1	249,653.5		21,445.8	2,454,999.8	19,212.7	2,205,346.3
	81-100	96.5	3,600.4	5,167.9	714,389.2		36,812.5	5,217,545.3	31,644.7	4,503,156.1
	101-120	117.3	8,029.2	3,462.5	533,022.6		21,926.5	3,357,928.8	18,464.0	2,824,906.2
	120+	76.3	9,255.1	1,545.4	185,747.7		9,278.7	1,076,786.3	7,733.3	891,038.6
Forest Unit Subtotal		307.0	21,653.5	17,774.3	1,703,653.2	0.0	147,465.0	12,438,779.2	129,690.7	10,735,126.0

Summary - All Forest Units

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Gross		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Bfir		143.2	11,853.2	6,686.8	356,346.9		55,240.6	2,904,474.2	48,553.8	2,548,127.3
BwPur		133.0	6,432.8	2,043.3	173,595.3		10,959.2	825,636.3	8,915.9	652,041.0
CoMix		376.6	57,230.5	9,803.4	786,453.5		120,047.0	5,926,955.7	110,243.6	5,140,502.2
HwdMx		198.0	13,197.1	7,330.3	671,574.7		53,654.4	3,706,671.6	46,324.1	3,035,096.9
PjAll		91.5	10,574.6	9,207.9	905,943.9		104,721.3	5,949,132.6	95,513.4	5,043,188.7
PoAll		58.9	9,843.5	4,208.0	458,068.1		30,140.3	2,582,322.5	25,932.3	2,124,254.4
PwAll		0.0	0.0	0.1	0.0		44.3	739.1	44.1	739.1
SbLow		7,075.7	625,701.3	6,604.8	412,065.7		64,002.7	3,052,771.3	57,398.0	2,640,705.6
SbUpl		307.0	21,653.5	17,774.3	1,703,653.2		147,465.0	12,438,779.2	129,690.7	10,735,126.0
Forest Unit Total		8,383.9	756,486.5	63,658.8	5,467,701.3		586,274.7	37,387,482.5	522,615.9	31,919,781.2

1996 - 2001 TMPM 4.8.1, 4.9

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Pw	1-20									
	21-40									
	41-60									
	61-80									
	81-100									
	101-120						58.0			
	120+						10.0			
Working Group Subtotal		0.0	0.0	0.0	0.0	0.0	68.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Pj	B&S						18,503.0			
	1-20						95,771.0			
	21-40						4,617.0			
	41-60						13,178.0			
	61-80						33,377.0			
	81-100						11,961.0			
	101-120						1,454.0			
	120+						1,249.0			
Working Group Subtotal		192.0	0.0	0.0	0.0	0.0	180,110.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
S	B&S						268.0			
	1-20						144.0			
	21-40						0.0			
	41-60						574.0			
	61-80						3,013.0			
	81-100						5,230.0			
	101-120						1,543.0			
	120+						805.0			
Working Group Subtotal		60.0	0.0	0.0	0.0	0.0	11,577.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Sb	B&S						44,992.0			
	1-20						18,705.0			
	21-40						13,203.0			
	41-60						16,184.0			
	61-80						44,067.0			
	81-100						61,408.0			
	101-120						30,357.0			
	120+						16,001.0			
Working Group Subtotal		6,481.0	0.0	0.0	0.0	0.0	244,917.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Sw	B&S						197.0			
	1-20						1,229.0			
	21-40						192.0			
	41-60						258.0			
	61-80						1,627.0			
	81-100						2,035.0			
	101-120						424.0			
	120+						78.0			
Working Group Subtotal		8.0	0.0	0.0	0.0	0.0	6,040.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Bf	B&S						7,295.0			
	1-20						407.0			
	21-40						5,212.0			
	41-60						41,049.0			
	61-80						9,354.0			
	81-100						878.0			
	101-120						127.0			
	121+						0.0			
Working Group Subtotal		242.0	0.0	0.0	0.0	0.0	64,322.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Ce	B&S						184.0			
	1-20						109.0			
	21-40						33.0			
	41-60						154.0			
	61-80						140.0			
	81-100						1,169.0			
	101-120						1,611.0			
	121+						1,473.0			
Working Group Subtotal		862.0	0.0	0.0	0.0	0.0	4,873.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
L	1-20						5.0			
	21-40						0.0			
	41-60						7.0			
	61-80						18.0			
	81-100						59.0			
	101-120						160.0			
	120+						131.0			
							71.0			
Working Group Subtotal		305.0	0.0	0.0	0.0	0.0	451.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Po	B&S						11,883.0			
	1-20						14,932.0			
	21-40						6,261.0			
	41-60						8,158.0			
	61-80						23,950.0			
	81-100						22,278.0			
	101-120						2,119.0			
	120+						581.0			
Working Group Subtotal		315.0	0.0	0.0	0.0	0.0	90,162.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Bw	B&S						4,604.0			
	1-20						690.0			
	21-40						1,936.0			
	41-60						10,308.0			
	61-80						7,118.0			
	81-100						4,630.0			
	101-120						1,456.0			
	120+						152.0			
Working Group Subtotal		364.0	0.0	0.0	0.0	0.0	30,894.0	0.0	0.0	0.0



Summary - All Forest Units

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Gross		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Pw		0.0	0.0	0.0	0.0		68.0	0.0	0.0	0.0
Pj		192.0	0.0	0.0	0.0		180,110.0	0.0	0.0	0.0
S		60.0	0.0	0.0	0.0		11,577.0	0.0	0.0	0.0
Sb		6,481.0	0.0	0.0	0.0		244,917.0	0.0	0.0	0.0
Sw		8.0	0.0	0.0	0.0		6,040.0	0.0	0.0	0.0
Hf		242.0	0.0	0.0	0.0		64,322.0	0.0	0.0	0.0
Ce		862.0	0.0	0.0	0.0		4,873.0	0.0	0.0	0.0
L		305.0	0.0	0.0	0.0		451.0	0.0	0.0	0.0
Po		315.0	0.0	0.0	0.0		90,162.0	0.0	0.0	0.0
Bw		364.0	0.0	0.0	0.0		30,894.0	0.0	0.0	0.0
Working Group Total		8,829.0	0.0	0.0	0.0		633,414.0	0.0	0.0	0.0

1991 - 1996 TMPM 4.8.1, 4.9

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Pw	1-20									
	21-40									
	41-60									
	61-80									
	81-100						28.0			
	101-120						59.0			
	120+						11.0			
Working Group Subtotal		0.0	0.0	0.0	0.0	0.0	98.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Pj	B&S						90,851.0			
	1-20						10,193.0			
	21-40						1,890.0			
	41-60						21,001.0			
	61-80						34,671.0			
	81-100						7,893.0			
	101-120						1,612.0			
	120+						1,667.0			
Working Group Subtotal		281.0	0.0	0.0	0.0	0.0	169,778.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
S	B&S						1,472.0			
	1-20						140.0			
	21-40						0.0			
	41-60						920.0			
	61-80						5,403.0			
	81-100						4,070.0			
	101-120						1,695.0			
	120+						712.0			
Working Group Subtotal		62.0	0.0	0.0	0.0	0.0	14,412.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Sb	B&S						75,653.0			
	1-20						12,968.0			
	21-40						4,991.0			
	41-60						22,726.0			
	61-80						51,194.0			
	81-100						59,334.0			
	101-120						23,690.0			
	120+						16,187.0			
Working Group Subtotal		6,658.0	0.0	0.0	0.0	0.0	266,743.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Sw	B&S						1,104.0			
	1-20						1,357.0			
	21-40						73.0			
	41-60						619.0			
	61-80						2,400.0			
	81-100						1,228.0			
	101-120						222.0			
	120+						0.0			
Working Group Subtotal		8.0	0.0	0.0	0.0	0.0	7,003.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Bf	B&S						4,905.0			
	1-20						137.0			
	21-40						8,570.0			
	41-60						45,192.0			
	61-80						4,146.0			
	81-100						656.0			
	101-120						41.0			
	121+						0.0			
Working Group Subtotal		246.0	0.0	0.0	0.0	0.0	63,647.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Cc	B&S						851.0			
	1-20						0.0			
	21-40						0.0			
	41-60						40.0			
	61-80						148.0			
	81-100						1,652.0			
	101-120						1,539.0			
	121+						1,393.0			
Working Group Subtotal		938.0	0.0	0.0	0.0	0.0	5,623.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
L	1-20						47.0			
	21-40						0.0			
	41-60						0.0			
	61-80						4.0			
	81-100						62.0			
	101-120						223.0			
	120+						111.0			
Working Group Subtotal		302.0	0.0	0.0	0.0	0.0	520.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Po	B&S						15,355.0			
	1-20						2,263.0			
	21-40						2,475.0			
	41-60						13,504.0			
	61-80						27,126.0			
	81-100						18,063.0			
	101-120						1,336.0			
	120+						244.0			
Working Group Subtotal		333.0	0.0	0.0	0.0	0.0	80,366.0	0.0	0.0	0.0

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m³)	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m³)		(ha)	(m³)	(ha)	(m³)
Bw	B&S						3,077.0			
	1-20						333.0			
	21-40						1,369.0			
	41-60						11,899.0			
	61-80						6,519.0			
	81-100						3,381.0			
	101-120						978.0			
	120+						128.0			
Working Group Subtotal		395.0	0.0	0.0	0.0	0.0	27,684.0	0.0	0.0	0.0

Summary - All Forest Units

Working Group	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Gross		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Pw		0.0	0.0	0.0	0.0		98.0	0.0	0.0	0.0
Pj		281.0	0.0	0.0	0.0		169,778.0	0.0	0.0	0.0
S		62.0	0.0	0.0	0.0		14,412.0	0.0	0.0	0.0
Sb		6,658.0	0.0	0.0	0.0		266,743.0	0.0	0.0	0.0
Sw		8.0	0.0	0.0	0.0		7,003.0	0.0	0.0	0.0
Bf		246.0	0.0	0.0	0.0		63,647.0	0.0	0.0	0.0
Cc		938.0	0.0	0.0	0.0		5,623.0	0.0	0.0	0.0
L		302.0	0.0	0.0	0.0		520.0	0.0	0.0	0.0
Po		333.0	0.0	0.0	0.0		80,366.0	0.0	0.0	0.0
Bw		395.0	0.0	0.0	0.0		27,684.0	0.0	0.0	0.0
Working Group Total		9,223.0	0.0	0.0	0.0		635,874.0	0.0	0.0	0.0

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Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Bfir	1-20	10.6	991.0				1,026.6	5,133.0	1,026.6	5,133.0
	21-40						1,105.5	12,161.0	1,105.5	12,161.0
	41-60						3,221.4	157,849.0	3,221.4	157,849.0
	61-80						1,610.6	150,591.0	1,610.6	150,591.0
	81-100						131.8	17,266.0	131.8	17,266.0
	101-120						4.0	506.0	4.0	506.0
	120+						0.0	0.0		
Forest Unit Subtotal		10.6	991.0	0.0	0.0	0.0	7,099.9	343,506.0	7,099.9	343,506.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
BwPur	1-20	33.0	231.0				5,103.3	35,723.0	5,103.3	35,723.0
	21-40						2,673.8	57,487.0	2,673.8	57,487.0
	41-60	331.3	21,038.0				7,132.8	452,933.0	7,132.8	452,933.0
	61-80	229.9	25,404.0				5,734.8	633,695.0	5,734.8	633,695.0
	81-100	16.5	1,898.0				734.8	84,502.0	734.8	84,502.0
	101-120						268.0	19,162.0	268.0	19,162.0
	120+						31.7	1,220.0	31.7	1,220.0
Forest Unit Subtotal		610.7	48,571.0	0.0	0.0	0.0	21,679.2	1,284,722.0	21,679.2	1,284,722.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
CoMix	1-20	32.8	180.0				41,091.0	226,000.0	41,091.0	226,000.0
	21-40	69.1	1,313.0				22,421.5	426,009.0	22,421.5	426,009.0
	41-60	404.6	26,097.0				14,123.0	910,934.0	14,123.0	910,934.0
	61-80	225.9	24,623.0				19,654.2	2,142,308.0	19,654.2	2,142,308.0
	81-100	322.7	45,178.0				14,945.6	2,092,384.0	14,945.6	2,092,384.0
	101-120	58.3	8,162.0				4,293.9	601,146.0	4,293.9	601,146.0
	120+	53.3	5,836.0				1,443.6	158,074.0	1,443.6	158,074.0
Forest Unit Subtotal		1,166.7	111,389.0	0.0	0.0	0.0	117,972.8	6,556,855.0	117,972.8	6,556,855.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
HwdMx	1-20	9.6	67.0				13,813.6	96,695.0	13,813.6	96,695.0
	21-40	240.4	6,491.0				15,598.4	421,157.0	15,598.4	421,157.0
	41-60	265.4	17,782.0				5,931.8	397,431.0	5,931.8	397,431.0
	61-80	332.7	38,094.0				11,131.1	1,274,511.0	11,131.1	1,274,511.0
	81-100	383.0	52,280.0				11,369.8	1,551,978.0	11,369.8	1,551,978.0
	101-120	39.0	4,544.0				3,200.8	372,893.0	3,200.8	372,893.0
	120+	50.5	3,737.0				499.4	36,956.0	499.4	36,956.0
Forest Unit Subtotal		1,320.6	122,995.0	0.0	0.0	0.0	61,544.9	4,151,621.0	61,544.9	4,151,621.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
PjAll	1-20	164.3	2,957.0				23,138.6	115,693.0	23,138.6	115,693.0
	21-40						56,326.7	1,013,881.0	56,326.7	1,013,881.0
	41-60						1,043.2	69,373.0	1,043.2	69,373.0
	61-80						17,111.3	2,421,249.0	17,111.3	2,421,249.0
	81-100	8.3	1,427.0				13,373.8	2,299,317.0	13,373.8	2,299,317.0
	101-120						2,409.1	402,320.0	2,409.1	402,320.0
	120+						831.0	114,263.0	831.0	114,263.0
Forest Unit Subtotal		172.6	4,384.0	0.0	0.0	0.0	114,233.7	6,436,096.0	114,233.7	6,436,096.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
PoAll	1-20						11,752.5	94,020.0	11,752.5	94,020.0
	21-40						6,104.5	280,807.0	6,104.5	280,807.0
	41-60						2,066.5	225,249.0	2,066.5	225,249.0
	61-80						8,185.0	1,231,843.0	8,185.0	1,231,843.0
	81-100	6.9	1,056.0				10,486.8	1,604,480.0	10,486.8	1,604,480.0
	101-120						1,310.3	133,651.0	1,310.3	133,651.0
	121+						34.5	1,346.0	34.5	1,346.0
Forest Unit Subtotal		6.9	1,056.0	0.0	0.0	0.0	39,940.1	3,571,396.0	39,940.1	3,571,396.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
PrAll	1-20						398.1	2,389.0	398.1	2,389.0
	21-40						0.0	0.0		
	41-60						0.0	0.0		
	61-80						0.0	0.0		
	81-100						0.0	0.0		
	101-120						0.0	0.0		
	121+						0.0	0.0		
Forest Unit Subtotal		0.0	0.0	0.0	0.0	0.0	398.1	2,389.0	398.1	2,389.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
PwAll	1-20						0.0	0.0		
	21-40						0.0	0.0		
	41-60						0.0	0.0		
	61-80						0.0	0.0		
	81-100						0.0	0.0		
	101-120						0.0	0.0		
	121+						31.4	4,851.0	31.4	4,851.0
Forest Unit Subtotal		0.0	0.0	0.0	0.0	0.0	31.4	4,851.0	31.4	4,851.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
SbLow	1-20	94.6	473.0				14,581.6	72,908.0	14,581.6	72,908.0
	21-40		0.0				2,551.0	2,551.0	2,551.0	2,551.0
	41-60	5.0	58.0				1,775.2	20,415.0	1,775.2	20,415.0
	61-80	872.1	33,140.0				7,447.5	283,005.0	7,447.5	283,005.0
	81-100	536.0	35,912.0				6,783.7	454,508.0	6,783.7	454,508.0
	101-120	915.4	84,675.0				8,484.6	784,826.0	8,484.6	784,826.0
	120+	4,191.7	440,129.0				41,385.4	4,345,467.0	41,385.4	4,345,467.0
Forest Unit Subtotal		6,614.8	594,387.0	0.0	0.0	0.0	83,009.0	5,963,680.0	83,009.0	5,963,680.0

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Available		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
SbUpl	1-20						40,766.1	203,831.0	40,766.1	203,831.0
	21-40						9,036.1	144,578.0	9,036.1	144,578.0
	41-60	12.2	714.0				7,861.8	459,915.0	7,861.8	459,915.0
	61-80	31.4	3,690.0				26,908.2	3,161,714.0	26,908.2	3,161,714.0
	81-100	15.3	2,295.0				28,124.7	4,218,705.0	28,124.7	4,218,705.0
	101-120	7.1	1,154.0				8,688.2	1,411,833.0	8,688.2	1,411,833.0
	120+						10,751.0	1,526,642.0	10,751.0	1,526,642.0
Forest Unit Subtotal		66.0	7,853.0	0.0	0.0	0.0	132,136.1	11,127,218.0	132,136.1	11,127,218.0

Summary - All Forest Units

Forest Unit	Age Class	Protection Forest		Production Forest						
		(ha)	(m <sup>3</sup> )	Unavailable		Stage of Management	Gross		Net Available	
				(ha)	(m <sup>3</sup> )		(ha)	(m <sup>3</sup> )	(ha)	(m <sup>3</sup> )
Bfir		10.6	991.0	0.0	0.0		7,099.9	343,506.0	7,099.9	343,506.0
BwPur		610.7	48,571.0	0.0	0.0		21,679.2	1,284,722.0	21,679.2	1,284,722.0
CoMix		1,166.7	111,389.0	0.0	0.0		117,972.8	6,556,855.0	117,972.8	6,556,855.0
HwdMx		1,320.6	122,995.0	0.0	0.0		4,151,621.9	61,544.9	61,544.9	4,151,621.0
PjAll		172.6	4,384.0	0.0	0.0		114,233.7	6,436,096.0	114,233.7	6,436,096.0
PoAll		6.9	1,056.0	0.0	0.0		39,940.1	3,571,396.0	39,940.1	3,571,396.0
PrAll		0.0	0.0	0.0	0.0	0.0	398.1	2,389.0	398.1	2,389.0
PwAll		0.0	0.0	0.0	0.0		31.4	4,851.0	31.4	4,851.0
Sblow		6,614.8	594,387.0	0.0	0.0		83,009.0	5,963,680.0	83,009.0	5,963,680.0
SbUpl		66.0	7,853.0	0.0	0.0		132,136.1	11,127,218.0	132,136.1	11,127,218.0
Forest Unit Total		9,968.9	891,626.0	0.0	0.0		578,045.2	39,442,334.0	578,045.2	39,442,334.0



As an overall observation, the level of forest management activity has not resulted in major changes to species representation or age class distribution. Instead, the effects of the massive 1980 fire and the spruce budworm epidemic of the 1980's have and will continue to shape the character of the Forest.

### **Summary Report of Renewal, Tending and Protection Operations**

Table 6 presents the summary report of renewal and tending for the 2001-2006 period as well as the two previous plan terms. Artificial regeneration is quite close to that planned (93%) but natural regeneration reporting is lagging at 42%. Site preparation is only 61% of that planned, however area reported as bracke seeded shows in artificial regeneration and has not been counted as site preparation as it appears was done for the plan. Tending activity, particularly aerial chemical is significantly more than planned. Overall, renewal activities are keeping pace with harvest. Fire and blowdown salvage areas have been regenerated as have burnt plantations.

### **Harvest Area Successfully Regenerated**

Table 7 summarizes the status of areas harvested between 1991 and 1996 and identifies progress towards attainment of FTG status. According to records of depletion and subsequent FTG surveys, 93% of the area depleted by harvest has been declared successfully regenerated. The remaining area is classified as roads and landings and is not available for regeneration. All area surveyed was successfully regenerated. The Ground Rules in place for the period considered all tree species acceptable regeneration regardless of the treatment package.

Although not part of Table 7, a general evaluation of the annual reports that were utilized to produce the table, reveals that there was little movement between forest units except the purposeful conversion of balsam fir to spruce. The silvicultural practices employed during the 1991-1996 period appear to have been successful at regenerating depleted areas to desired species.

Paul Poschmann, R.P.F.  
Divisional Forester  
December 6, 2006.

**2006 Independent Forest Audit****Table 6 - SUMMARY REPORT OF RENEWAL, TENDING AND PROTECTION OPERATIONS (RPFO-7)****Spruce River Forest**

	Area Summary of all Forest Units (ha)					
	Past Plan Term (91 - 96)		Past Plan Term (96 - 01)		Current Plan Term (01-06)	
	Planned	Actual	Planned	Actual	Planned	Actual
<b>Renewal</b>						
<b>Regeneration</b>						
<b>Uneven-Aged Management</b>						
Selection Cut - Harvest						
<b>Total Uneven-Aged Management</b>						
<b>Even-Aged Management</b>						
<b>Natural Regeneration</b>						
Clearcut	18,288.0	99.0	9,365.0	8,696.5	10,729.0	4,496.0
Strip Cut	750.0					
Seed Tree Cut						
Uniform Shelterwood Seed Cut						
<b>Subtotal Natural</b>	19,038.0	99.0	9,365.0	8,696.5	10,729.0	4,496.0
<b>Artificial Regeneration</b>						
Planting	11,000.0	5,880.4	13,567.0	11,261.4	11,358.8	10,886.0
Seeding	5,500.0	958.5		1,226.5		
direct						
with site preparation	5,000.0	3,368.2	8,500.0	3,864.9	4,365.4	3,719.0
Scarification	500.0	106.8		43.9		
<b>Subtotal Artificial</b>	22,000.0	10,345.9	22,067.0	16,396.7	15,724.2	14,605.0
<b>Total Even-Aged Management</b>	41,038.0	10,444.9	31,432.0	25,093.2	26,453.2	19,101.0
<b>Total Regeneration</b>	60,076.0	10,543.9	40,797.0	34,790.1	37,182.2	23,597.0
<b>Site Preparation</b>						
Mechanical	17,400.0	9,455.2	12,817.0	10,661.4	16,523.4	10,070.0
Chemical	4,000.0	1,095.5	1,370.0	2,646.7	3,000.0	167.0
Prescribed Burn	571.0	1,297.3	800.0			
<b>Total Site Preparation</b>	21,971.0	11,848.0	15,087.0	13,308.1	19,523.4	10,237.0
<b>Tending</b>						
<b>Cleaning</b>						
manual	1,500.0		3,000.0	249.9	1,402.9	2,120.0
chemical - ground				219.1	295.5	137.0
aerial	10,000.0	5,481.0	6,500.0	11,773.6	9,326.9	16,000.0
mechanical						
prescribed burn						
<b>Spacing, pre-commercial thinning, improvement cutting</b>						
even aged						
uneven aged						
<b>Cultivation</b>						
<b>Total Tending</b>	11,500.0	5,481.0	9,500.0	12,242.6	11,118.3	18,307.0
<b>Protection (Insect Pest Control)</b>						
accelerated harvest						
salvage						
manual protection						
ground insecticide						
aerial insecticide						
<b>Total Protection</b>						

Source:

planned: TMPM Table 4.19, FMPM Table FMP-25

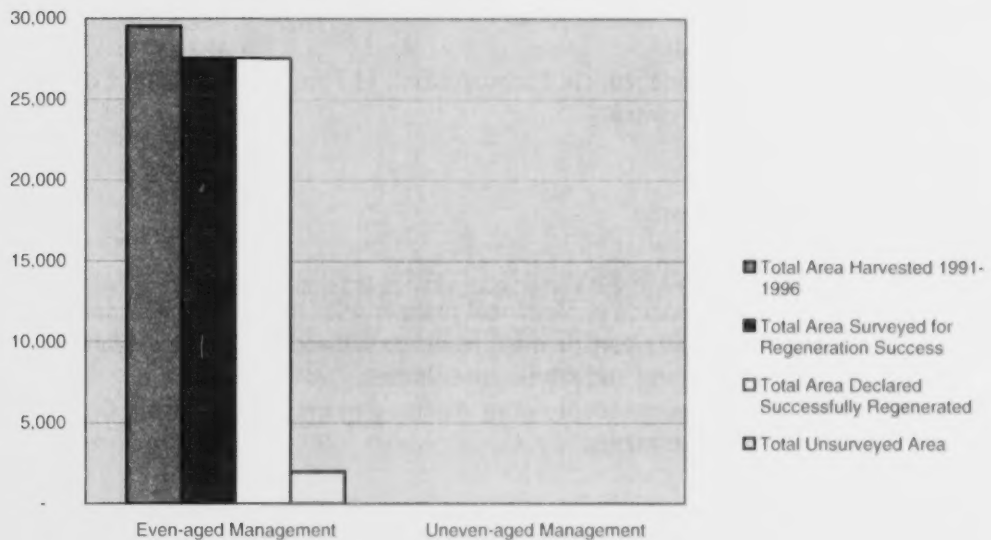
actual: TMPM Table 4.4, 1996 FMPM Table RPFO-7 and annual reports; 2004 FMPM AR-7

## 2006 Independent Forest Audit

Table 7 - Harvested Area Successfully Regenerated - Summary of All Forest Units

### Spruce River Forest

	AREA IN HECTARES (All Forest Units Combined)	AREA IN HECTARES (All Forest Units Combined)
	Even-aged Management	Uneven-aged Management
Total Area Harvested 1991-1996	29,525	-
Total Area Surveyed for Regeneration Success	27,547	-
Total Unsurveyed Area	1,978	-
Total Area Declared Successfully Regenerated	27,547	-
<b>Total Area Surveyed Not Successfully Regenerated</b>		
NSR	-	-
B&S	-	-
Not Available for Regen. (eg. Roads & landings)	-	-
Other	-	-
<b>Percent of Area Surveyed Declared Successfully Regenerated</b>	100.0%	



**Source:**

total area harvested: TPM Table 4.1, FMPM Table RPFO-2, or annual reports

survey results: TPM Table 4.7, 1996 FMPM Table RPFO-8, RPFO-9, 2004 FMPM AR-7, AR-14, AR-16 and silviculture records

Note: Includes natural depletion area surveyed. Does not include area surveyed in 1996.

## **APPENDIX B – AUDIT TEAM MEMBERS AND QUALIFICATIONS**

### ***Craig Howard, R.P.F., CEA (SFM) – Lead Auditor***

Education: B.Sc. Forestry, University of New Brunswick, 1983.  
Experience: 22 years experience in forestry, 11 years in private practice, 3 years in the OMNR.  
Previous Audits: 13 Independent Forest Audits, 10 Sustainable Forest Initiative Verifications, 2 Forest Stewardship Council Assessments.

### ***Mark Leschishin, R.P.F – Forester***

Education: B.Sc. Forestry, Lakehead University, 1978. Dip. For. Tech., 1974.  
Experience: 27 years experience in forestry in Ontario.  
Previous Audits: 10 Independent Forest Audits.

### ***Tom Clark – Ecologist***

Education: M.Sc., H.B.Sc.  
Experience: Forest ecologist and biologist with 26 years experience in habitat ecology.  
Previous Audits: 12 Independent Forest Audits, 13 Forest Stewardship Council Assessments.

### ***Phil Shantz – Socio-economist***

Education: M.E.S, R.P.P.  
Experience: Registered professional planner with 14 years experience in forest auditing/certification, resource and socio-economics, land-use planning and public consultation.  
Previous Audits: 11 Independent Forest Audits, 11 Forest Stewardship Council Assessments.

### ***Brian Callaghan, R.P.F. – Forest Management Planning Analyst***

Education: B.Sc.F., University of Toronto, 1982.  
Experience: 24 years experience in forestry in Ontario.  
Previous Audits: 19 Independent Forest Audits, 12 Sustainable Forest Initiative Verifications, 9 Forest Stewardship Council Assessments.

***Anne Hayes, M.P.M. – Secretariat***

Education: B.S. (Plant and Soil Biology); Master of Pest Management.  
Experience: 10 years experience as biologist in Ontario.  
Previous Audits: 5 Independent Forest Audits, 2 Sustainable Forest Initiative Verifications, 1 Forest Stewardship Council Assessment.

## APPENDIX C – INDEPENDENT FOREST AUDIT GUIDING PRINCIPLES

<b>Commitment</b>	Commitment is reflected in vision, mission and policy statements of the company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.
<b>Public Participation</b>	The process of sustainable forest planning, implementation and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizens Committee, native groups, and other parties with an interest in the operations of the forest unit.
<b>Forest Management Planning</b>	The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve that goal. Certain minimum standards and procedures have been established upon which all management units are evaluated.
<b>Plan Implementation</b>	Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievement of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.
<b>Systems Support</b>	System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.
<b>Monitoring</b>	The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.
<b>Achievement of Management Objectives &amp; Forest Sustainability</b>	Periodic assessments of the management of the forest unit operations and the forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.
<b>Contractual Obligations</b>	The licensee must comply with the specific license requirements.



## **APPENDIX D – LIST OF ACRONYMS USED**

ACOP – Annual Compliance Operating Plan  
AOC – Area of Concern  
AWS – Annual Work Schedule  
B&S – Barren and Scattered  
CFSA – Crown Forest Sustainability Act  
CLAAG – Careful Logging Around Advanced Growth  
CSA – Canadian Standards Association  
EMS – Environmental Management System  
FIM – Forest Information Manual  
FMP – Forest Management Plan  
FMPM – Forest Management Planning Manual  
FOCIS – Forest Operations Compliance Information System  
FOIP – Forest Operations Inspection Program  
FOP – Forest Operations Prescription  
FRI – Forest Resource Inventory  
FTG – Free-to-Grow  
FWFN – Fort William First Nation  
GIS – Geographic Information System  
GPS – Global Positioning System  
IFA – Independent Forest Audit  
IFAPP – Independent Forest Audit Process and Protocol  
ISO – International Organizations for Standardization  
KZA – Kiashke Zaaging Anishinaabek  
LCC – Local Citizens' Committee  
MNDM – Ministry of Northern Development and Mines  
MOA – Memorandum of Agreement  
NDPEG – Forest Management Guide for Natural Disturbance Pattern Emulation  
NRVIS – Natural Resources Values Information System  
OFAH – Ontario Federation of Anglers and Hunters  
OLL – Ontario's Living Legacy  
OMNR – Ontario Ministry of Natural Resources  
RPFO – Report of Past Forest Operations  
RSA – Resource Stewardship Agreement  
SEIM – Socio-Economic Impact Model  
SEV – Statement of Environmental Values  
SFL – Sustainable Forest License  
SFMM – Strategic Forest Management Model  
SGR – Silvicultural Ground Rule  
SRF – Spruce River Forest  
SWTIA – Superior-Woods Tree Improvement Association

## **APPENDIX E – SUMMARY OF INPUT TO AUDIT PROCESS**

**General Public:** Using the mailing list that the Ontario Ministry of Natural Resources (OMNR) maintains for the Spruce River Forest (SRF), a survey was sent to 541 stakeholders on August 1, 2006. The survey was also posted on the BioForest Technologies Inc. web page. A public information booth was advertised in the Chronicle Journal in Thunder Bay on August 8, 2006, and hosted in the Intercity Shopping Centre in Thunder Bay on August 9 and 10, 2006. The purpose of the survey and the information booth was to provide members of the public with an opportunity to comment on the forest management that occurred on the SRF over the audit period. The audit team received 22 responses to the survey, a return rate of about 4 %. Twenty-two people visited the public information booth. Eight of the visitors discussed the SRF specifically, while the remaining visitors were interested in the audit process in general.

**Local Citizens' Committee:** The lead auditor attended a meeting of the Local Citizens' Committee (LCC) to inform the committee of the audit and answer any initial questions. A member of the audit team directly interviewed 12 members of the LCC. The individual interviews allowed LCC members to comment on the effectiveness of the LCC and the performance of both the Company and OMNR. In addition to the interviews, members of the LCC attended the field portion of the audit.

LCC members were generally supportive of the management activities taking place on the Forest. Concerns raised focussed on the current economic climate in the forest sector and, more specifically, what the government could or should be doing to create a more competitive forest industry.

**Aboriginal Communities:** The auditors spoke directly with members of three First Nations: Lac Des Mille Lacs First Nation, Kiashke Zaaging Anishinaabek (KZA) (Gull Bay), and Fort William First Nation (FWFN). The proximity of First Nations to the SRF has meant that it is of less interest to Aboriginal people than many other forests in the Province. Nevertheless, Aboriginal participation and interest in many aspects of forest management on the SRF has increased over the last five years.

Consultation with First Nations led the audit team to make one recommendation and two suggestions. The auditors recommend that Condition #34 be revised to ensure that timber allocations consider First Nations' economic interests. It is suggested that the Company track the values collection process for the Lac Des Mille Lacs First Nation and that OMNR and the Company explore the opportunity to create silviculture jobs for the Whitesand First Nation.

**Overlapping Licensees:** Representatives from three overlapping licensees (Buchanan Forest Products Ltd., Niigaani Enterprises Inc. and Columbia Forest Products) attended the pre-audit meeting. Buchanan Forest Products Ltd. personnel attended three days of the field audit.

**Ontario Ministry of Natural Resources:** The OMNR area supervisor, area forester, area biologist, and technician participated in the opening and closing meetings of the field audit, as well as the field audit itself. The OMNR District Manager attended the pre-audit meeting and was directly interviewed by the auditors. OMNR regional staff attended two days of the field audit and the pre-audit, opening and closing meetings. No main office OMNR staff participated in the audit.

**Abitibi:** The Divisional Forester and Senior Operations Forester participated in all aspects of the audit. The Woodlands Manager participated in the opening and closing meetings.





